

St. Petersburg University
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Master in Management

FACTORS AFFECTING
CORPORATE ENTREPRENEURSHIP INTENSITY
IN RUSSIAN IT COMPANIES

Master's Thesis by the 2nd year student

Concentration — MITIM

Ekaterina Tolmacheva

Research advisor:

Professor, Galina Shirokova

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ЗАЯВЛЕНИЕ О САМОСТОЯТЕЛЬНОМ ХАРАКТЕРЕ ВЫПОЛНЕНИЯ ВЫПУСКНОЙ КВАЛИФИКАЦИОННОЙ РАБОТЫ

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АННОТАЦИЯ

Автор	Толмачева Екатерина Александровна
Название магистерской диссертации	Факторы влияющие на интенсивность внутрифирменного предпринимательства в российских ИТ компаниях
Факультет	Высшая школа менеджмента
Направление подготовки	Менеджмент (Master in Management - MIM)
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Научный руководитель	доктор экономических наук, профессор Г.В. Широкова
Описание цели, задач и основных результатов	Целью исследования является определение влияния внутренних и внешних факторов на внутрифирменное предпринимательство в российских ИТ компаниях. К внутренним факторам, имеющим положительное влияние на интенсивность внутрифирменного предпринимательства были отнесены высокий уровень сложности организационной структуры, нематериальная мотивация, гибкость системы планирования и ориентация системы планирования на потребности рынка. К внутренним факторам, негативно влияющим на интенсивность внутрифирменного предпринимательства относятся высокий уровень формализации и долгосрочное планирование. Внешние факторы – динамизм, гетерогенность рынка и уровень конкуренции - положительно влияют на интенсивность внутрифирменного предпринимательства.
Ключевые слова	Внутрифирменное предпринимательство, факторы влияющие на внутрифирменное предпринимательство, инновации, ИТ

ABSTRACT

Master Student's Name	Ekaterina Tolmacheva
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Description of the goal, tasks and main results	The goal of the research is to understand how do internal and external factors impact CE in Russian IT companies. Internal factors positively related to CE intensity are high level of complexity, non-monetary motivation, flexibility of planning and market scope of planning. Internal factors negatively related to CE intensity are high level of formalization and long-term horizon of planning. All external factors, dynamism, heterogeneity and level of rivalry are proved to be positively related to CE intensity.
Keywords	Corporate entrepreneurship, factor of corporate entrepreneurship, innovations, IT

Table of Contents

Introduction	5
Chapter 1. Corporate entrepreneurship: theoretical background and modern interpretation	7
1.1. Approaches to corporate entrepreneurship definition	7
1.2. Historical perspective of corporate entrepreneurship research	10
1.3. Benefits of corporate entrepreneurship	14
1.4. Internal and external factors influencing the intensity of corporate entrepreneurship	15
Chapter 2. Factors influencing corporate entrepreneurship intensity: results of empirical research.....	28
1.1. Case study design	28
1.5. Results of cross-case analysis	32
1.7. Findings from a case study	41
Conclusions	44
List of References	47
Appendix 1. Results of literature analysis	57
Appendix 2. Interview questions	60
Appendix 3. Short interviews' results	62

INTRODUCTION

The following master thesis investigation is devoted to internal and external factors affecting corporate entrepreneurship in Russian IT companies.

The IT industry by way of a research object was selected due to the fact that the IT industry is highly associated with innovations – ICT patents applications amount 40% of all patent applications and ICT R&D expenditures account up to 33% of overall business expenditures on Research and Development (OECD, 2015). In order to stay competitive in this industry company need to support a process of constant product development, possible only with innovations. There are two ways to stay innovative: merge innovations or develop innovation within a company. First way probably takes less effort, but second provides an internal source of innovations.

Corporate entrepreneurship importance for a company is hard to overemphasize: according to multiple scientific researches, it not only improves financial, market and innovation performance, but also enhances capabilities and helps in creating of learning organization. Companies with intensive corporate entrepreneurship tend to be more competitive in hostile markets, what has a special concern for companies currently operating on Russian market. The analysis of corporate entrepreneurship predictors has a significant importance for companies operating on highly innovative markets where lack of innovativeness, failure to diversify products portfolio and product updates' delays leads to wane of a market share or to company bankruptcy. Ability to create an outstanding product is a main success driver on markets where customer's preferences are formed by companies operating on this market. Moreover, constant development of new products and services is able to help a company to differentiate product portfolio and to avoid a company failure at a moment when product's lifecycle is over.

The purpose of the study conducted is in building a working model of external and internal factors, influencing the intensity of corporate entrepreneurship and giving a description of how do elements of internal and external environment influence corporate entrepreneurship in Russian IT companies. Research question established is how external and internal factors affect corporate entrepreneurship. Answer on this question will give managers an understanding of which factors impact corporate entrepreneurship directly, which factors are just supportive and what direction company should work in order to establish intensive corporate entrepreneurship.

This paper consists of the investigation of approaches to corporate entrepreneurship definition, the theoretical research of corporate entrepreneurship theories with segregation on stages according to time and to the object of a research, identification of corporate entrepreneurship benefits and the observation of existing findings in corporate entrepreneurship

antecedents. The study of theoretical sources is following with building 13-factors model, taking into consideration influence of external and internal environment. Farther as a result of research of connections between external and internal environment is suggested a model, taking into consideration key role of the industry influence on corporate entrepreneurship intensity.

The theoretical part is supported with the case study of five Russian IT companies consisting of interviews with companies' founders and executives and the analysis of the results collected and adjustment of a theoretical model aligning it to the case study findings.

The last step of this research is comparison of results expected according to the theoretical model and results obtained from an empirical study, a discussion on matches and assumptions of reasons of mismatch, a managerial implication of the results obtained, a description of limitations and suggestions for further researches.

CHAPTER 1. CORPORATE ENTREPRENEURSHIP: THEORETICAL BACKGROUND AND MODERN INTERPRETATION

1.1. Approaches to corporate entrepreneurship definition

Before the term “corporate entrepreneurship” became acknowledged, in scientific researches were developed several concepts describing the same phenomenon under various names. In 1984, Pinchot used a term “intrapreneurship” describing process of corporate innovations inside the existing company (Pinchot 1984, p. 29), repeating internal corporate entrepreneurship of Schollhammer made in 1981 (Schollhammer, 1981). Ellis and Taylor in 1987 and Guth and Ginsberg in 1990 applied to use “corporate venture” term for designation the process of innovation within an existing organization (Ellis and Taylor, 1987; Guth and Ginsberg, 1990).

First possible approach is to focus on personal characteristics of an individual intrapreneur. In 1984, Pinchot defined intrapreneur as person “who take hands-on responsibility for creating innovation of any kind, within a business” (Pinchot, 1984, p. 29). Ross and Unwalla in 1986 described intrapreneur as an ambitious and competitive person changing current situation, focused on results and motivated by challenges and innovation (Ross and Unwalla, 1986). Bagby and Luchsinger in 1987 suggested that an intrapreneur differs from entrepreneur by the psychological nature: while first is looking for changes and innovations in the context of existing organization, second is more independent and oriented on stat-up mode (Bagby and Luchsinger, 1987). McKinney in 1989 supposed that intrapreneur is a person able to support innovativeness and sustain an entrepreneurial activity within a big corporate environment (McKinney, 1989, p. 79).

Second approach makes an accent on corporate venture formation. In 1979 Biggadike told that corporate venture is "marketing a product or service that the parent company has not previously marketed and that requires the parent company to obtain new equipment or new people or new knowledge” (Biggadike, 1979, p. 104). Cooper in 1981 suggested a concept of intracorporate ventures giving a birth to new businesses and developing, producing, and marketing a new product (Cooper, 1981, p. 41). Ellis and Taylor in 1987 defined corporate venture as “a strategy of unrelatedness to present activities, to adopt the structure of an independent unit and to involve a process of assembling and configuring novel resources” (Ellis and Taylor, 1987, p. 528). Guth and Ginsberg in 1990 named internal venturing a one of the possible forms of corporate entrepreneurship, characterized with a new businesses creation

within an existing organization, while second form is a transformation of an organization (Guth and Ginsberg, 1990, p. 6).

Burgelman in 1983 defined corporate entrepreneurship as a process of innovation through an internally invented new combination of sources (Burgelman, 1983, p. 1349). This definition sends to Schumpeter's specification, which has become a classic, observing the main function of entrepreneurship as a recombination of existing factors or a new combinations invention (Schumpeter, 1934). In 1986 Zahra distinguished five forms of corporate entrepreneurship: administrative, opportunistic, acquisitive, imitative and incubative (Zahra, 1986) and afterwards gave a definition of corporate entrepreneurship as formal or informal activities aimed at creating new businesses in established companies through product and process innovations and market developments (Zahra, 1991). In 1995 Zahra named corporate entrepreneurship the combination of company's innovation, renewal, and venturing efforts (Zahra, 1995, p. 227).

Sathe in 1988 stated two types of corporate entrepreneurship: deep and surface; surface is a pattern where entrepreneurship perceived as a business objective, when in deep it perceived as a shared value (Sathe, 1988). Corporate entrepreneurship includes not only entrepreneurial processes within an existing organization but also includes observation of external environment looking for new markets and opportunities (Russell, 1992; Covin and Slevin, 1998). According to Stopford and Baden-Fuller in 1994, exists three types of corporate entrepreneurship: a creation of new business activities within an existing organization, a transformation or a renewal of existing organizations and a change of rules of competition in its industry (Stopford and Baden-Fuller, 1994). Birkinshaw in 1997 identified four types of initiatives based on the locus of the market opportunity: local, internal, global and hybrid (Birkinshaw, 1997).

Further development of the concept accepted corporate entrepreneurship not only as a way of new combination of existing resources, but also as a way of resource creation (Zahra, Jennings, and Kuratko, 1999).

In 2001 Ahuja and Lampert identified three organizational pathologies that inhibit breakthrough inventions: the familiarity trap – favoring the familiar; the maturity trap – favoring the mature; and the propinquity trap – favoring search for solutions near to existing solutions (Ahuja and Lampert, 2001).

Corporate entrepreneurship is also similar to a concept of an entrepreneurial organization, because this concept suggest entrepreneurial organization as a company with innovations and improvements constantly developing within an organization (Morris, 2001). Corporate entrepreneurship strategy is manifested through the presence of three elements: an entrepreneurial strategic vision, a proentrepreneurship organizational architecture, entrepreneurial processes and behavior (Ireland, Covin, Kuratko, 2006a).

Entrepreneurship intensity depends on frequency and degree of entrepreneurship (Ireland et al., 2006a). The degree of entrepreneurship indicates the extent to which an organization's efforts are innovative, risky, and proactive (Ireland et al., 2006a, p. 12). Corporate entrepreneurship intensity is connected to a definition of entrepreneurial firm: risk-taking, innovative, and proactive (Barringer, 1991). Proactiveness means that company strategy is more oriented on launching new product than responding a competition (Covin and Stevin, 1990; Zahra, 1993; Barrett, 1996). Quinn in 1979 defined innovation as development of original decision for new or already existing need (Quinn, 1979). Frequency of entrepreneurship estimation is based on amount of entrepreneurial initiatives company is taking (Ireland et al., 2006b).

In the following research, corporate entrepreneurship is interpreted as an innovation process occurring within an existing organization aimed on new product creation, existing product development, organizational processes improvement and general observation of new opportunities for a company.

Three approaches to corporate entrepreneurship definition: through the initiator of innovations – intrapreneur; corporate venturing and corporate entrepreneurship are presented in Table 1.

Table 1 Approaches to corporate entrepreneurship definition

Date	Definition	Author	Source
Intrapreneur			
1984	A person who take hands-on responsibility for creating innovation of any kind, within a business	Pinchot, G.	Who is the Intrapreneur? In: Intrapreneuring: Why You Don't Have to Leave the Corporation to Become an Entrepreneur. <i>Harper & Row</i> . p.29
1986	An ambitious and competitive person changing current situation, focused on results and motivated by challenges and innovation	Ross and Unwalla	Who is an intrapreneur?, <i>Personnel</i> , 63 (12)
1989	A person able to support innovativeness and sustain an entrepreneurial activity within a big corporate environment	McKinney	Forget the Corporate Umbrella--Entrepreneurs Shine in the Rain. <i>Sloan Management Review</i> 30, no. 4, p. 79
Corporate venturing			
1979	Marketing a product or service that the parent company has not previously marketed and that requires the parent company to obtain new equipment or new people or new knowledge	Biggadike	The risky business of diversification. <i>Harvard Business Review</i> . 57(3). p. 104
1981	Intracorporate ventures giving a birth to new businesses and developing, producing, and marketing a new product	Cooper	Strategic Management: New Ventures and Small Business. <i>Long Range Planning</i> 14(5) p. 41

Date	Definition	Author	Source
1987	A strategy of unrelatedness to present activities, to adopt the structure of an independent unit and to involve a process of assembling and configuring novel resources	Ellis and Taylor	Specifying entrepreneurship. <i>Frontiers of entrepreneurship research</i> p. 528
1990	Internal venturing is a one possible forms of corporate entrepreneurship, characterized with a new businesses creation within an existing organization, while second form is a transformation of an organization	Guth and Ginsberg	Guest editors' introduction: Corporate entrepreneurship. <i>Strategic management journal</i> 11, no. 5p. 6
Corporate entrepreneurship			
1983	A process whereby the firms engage in diversification through internal development.	Burgelman	Corporate entrepreneurship and strategic management: Insights from a process study. <i>Management science</i> 29, no. 12 p. 1349
1991	Corporate entrepreneurship involves extending the firm's domain of competence and corresponding opportunity set through internally generated new resource combination	Covin and Slevin	A conceptual model of entrepreneurship as firm behavior. <i>Entrepreneurship: Critical perspectives on business and management</i> 3 p. 7
1989	The extent to which new products and/or new markets are developed. An organization is entrepreneurial if it develops a higher than average number of new products and/or new markets	Jennings and Lumpkin	Functioning modeling corporate entrepreneurship: An empirical integrative analysis. <i>Journal of management</i> 15, no. 3 p. 489
1993	A process of organizational renewal that has two distinct but related dimensions: innovation and venturing, and strategic renewal	Zahra	Environment, corporate entrepreneurship, and financial performance: A taxonomic approach. <i>Journal of business venturing</i> 8.4 p. 321
1995	The sum of a company's innovation, renewal, and venturing efforts	Zahra	Contextual influences on the corporate entrepreneurship-performance relationship: A longitudinal analysis. <i>Journal of business venturing</i> 10, no. 1 p. 227

1.2. Historical perspective of corporate entrepreneurship research

The foundational research made from 1980 to 1990 years mostly established the terminology, concept and factors of corporate entrepreneurship. For example, Burgelman in his work (Burgelman, 1983) separated different types of the strategic behavior, one of which is a creating opportunity corresponding with company strategy and the second stands out of current corporate strategy and suppose that executive's critical contribution consists in strategic recognition rather than planning. Further analysis touches areas that are more detailed as work by Ian Macmillan (MacMillan, Block and Narashima, 1986), examining the factors of success of

corporate ventures and suggesting a new planning tool appropriate for a modern entrepreneurship organization. Sathe investigated two patterns of corporate entrepreneurship: surface entrepreneurship and deep entrepreneurship (Sathe, 1988); conduction of the longitudinal investigation of eight big companies let him make a conclusion that the common pattern in surface entrepreneurship is perception of entrepreneurship as a business objective, while in deep type entrepreneurship is perceived as a shared value. In 1989 the analysis of factors in conservative and entrepreneurship organizations held by Jennings and Lumpkin found that in entrepreneurial firms decision making is more participative, more specialized personnel are employed, performance objectives are developed from a shared objectives, managers are not penalized in case of project failure compared to conservative firms (Jennings and Lumpkin, 1989).

Period from 1990 to 2000 years suggests researches of more practical sides of corporate entrepreneurship as financial performance improvement from it (Zahra, 1991, 1993, 1996; Vozikis et al., 1999) showing significant positive relation between financial performance and intensity of corporate entrepreneurship, the capabilities improvement (Zahra, Nielsen, and Bogner, 1999) and knowledge sharing enhancing (Anders et al., 1999; Floyd and Wooldridge, 1999). It was also concluded that corporate entrepreneurship makes companies more competitive in a hostile market (Filatotchev et al, 1999; Zahra, Covin and Slevin, 1995; Zahra and Garvis, 2000). Birkinshaw investigated corporate entrepreneurship within MNCs subsidiaries with detailed inductive study of 39 initiatives in MNC subsidiaries to determine whether there were differences between the different initiative types and found that four types of initiatives could be identifiable, on the basis of the locus of the market opportunity: local, internal, global and hybrid (Birkinshaw, 1997). Russel and Russel in 1992 evaluated impact of organizations' structural and environmental characteristics on innovation by investigation of 77 companies (Russel, 1992). Jones and Butler the same year investigated how agency problems affect the dynamics of internal corporate entrepreneurship and the level of entrepreneurial behavior (Jones and Butler, 1992). Further, Barringer and Bluedorn in 1999 were looking for a relationship between corporate entrepreneurship intensity and five specific strategic management practices by providing hierarchical regression analysis to find a correlation between corporate entrepreneurship intensity and five in a sample of 169 U.S. manufacturing firms. As a result of those researches were suggested factors affecting establishment of corporate entrepreneurship such as level of control (Russel, 1992, Barringer and Bluedorn, 1999), environmental uncertainty (Russel, 1992, Jones and Butler 1992), planning system (Barringer and Bluedorn, 1999), organizational structure and size (Russel, 1992, Jones and Butler 1992), risk preferences (Jones and Butler, 1992).

During the period from 2000 to 2009 were continued precious analyses of all areas of corporate entrepreneurship and presented articles analyzing the effect of intellectual capital and HRM research policies on corporate entrepreneurship (Schmelter, Mauer, Börsch, and Brettel, 2010; Zhang and Jia, 2010), the effects of CE on company performance in the international context (Kemelgor, 2002), opportunity recognition (O'Connor and Rice, 2001) and difficulties of innovations in established firms (Ahuja, Lampert, 2001). Rutherford and Holt tested a model of corporate entrepreneurship consisting of three antecedent categories of corporate entrepreneurship: context, process and individual characteristics on a sample of 264 employees of a mid-sized organization (Rutherford and Holt, 2009). Hornsby, Kuratko, Shepherd and Bott found that the relationship between managers' perceptions of an organizational environment and a number of implemented entrepreneurial ideas depends on managers' structural level by usage regression analysis on a sample 458 managers (Hornsby et al., 2009). Kelley, Peters and O'Connor examined on how network capacity on three levels can form an innovation-based corporate entrepreneurship by providing comparative case analysis of 246 interviews in twelve industry-leading global corporations (Kelley, Peters and O'Connor, 2009). Furthermore was taken an attempt to integrate knowledges about CE in one model (Ireland, Covin and Kuratko, 2009) concluded that corporate entrepreneurship strategy is manifested through the presence of three elements: an entrepreneurial strategic vision, a pro-entrepreneurship organizational architecture, and entrepreneurial processes and behavior.

From 2010 till 2016 scientist mostly investigated narrow and specific aspects of corporate entrepreneurship, such as differences of corporate entrepreneurship in variety of cultural context (Marcotte, 2011, Li and Zahra, 2012), directors' human and relational capital influence on firms R&D spending (Dalziel, Gentry, Bowerman 2011), utilization of cross-functional teams in order to augment corporate entrepreneurship practices (Ferdousi, 2012) and development of corporate entrepreneurship in different stages of organizational life-cycle (Duobiene, 2013). In 2015 were evaluated a role of organizational size on difference of forms of corporate entrepreneurship (Nason, McKelvie, and Lumpkin, 2015), explained how corporate entrepreneurship creates variety of knowledge and the role of entrepreneurial hubs in capturing, accumulating, converting and translating, and integrating this knowledge (Zahra, 2015), estimation of how three different types of corporate entrepreneurship: strategic renewal, innovation and corporate venturing influence firm performance (Bierwerth et al., 2015), overlap of corporate entrepreneurship and entrepreneurial orientation (Todorovic and Ma, 2015; Wang et al., 2015).

Table 2 contains description of five stages of corporate entrepreneurship researches: foundation, application, typology, antecedents and integration, their periods, main findings and authors, associated to each stage.

Table 2 Stages of Corporate Entrepreneurship Research

Stage	Object	Findings	Authors
<i>Foundation</i> 1979-1989	Corporate entrepreneurship concept and definition	Corporate entrepreneurship is an innovation process within organization	(Burgelman, 1983; Pinchot, 1984; Sathe, 1988; Biggadike, 1979)
<i>Application</i> 1986-1999	Benefits from corporate entrepreneurship	Corporate entrepreneurship improves financial performance, capabilities and supports learning organization	(Zahra, 1991, 1993; Zahra, Nielsen, and Bogner, 1999; Filatotchev et al, 1999)
<i>Typology</i> 1985-1997	Which types of CE could be identified and how do they differ	Internally and externally oriented CE Four types of initiatives: local, internal, global and hybrid	(Macmillan, 1986; Zahra, 1995; Birkinshaw, 1997)
<i>Antecedents</i> 1989-2001	Factors affecting corporate entrepreneurship	Scanning intensity, planning flexibility, locus of planning, strategic controls, organizational size, age and complexity, effects of risk preferences, innovation norms, degree of decentralization, organizational structure, decision making, objectives, motivation, environmental uncertainty effects of opportunism affect corporate entrepreneurship	(Jennings and Lumpkin, 1989; Russell, 1992; Jones and Butler, 1992; Barringer and Bluedorn, 1999; Zahra, 1991; 1993; 2001)
<i>Integration</i> 1999-2015	Integration of all CE researches in one model	CE strategy is manifested through the presence of three elements: an entrepreneurial strategic vision, a pro-entrepreneurship organizational architecture, and entrepreneurial processes and behavior	(Ireland, Covin, Kuratko, 2009; Zahra et al, 2013)

1.3. Benefits of corporate entrepreneurship

Plenty of theoretical sources evidence that companies with intensive corporate entrepreneurship demonstrate financial performance improvement (Zahra, 1991, 1993, 1995; Vozikis et al., 1999); knowledge sharing enhancing (Anders et al., 1999; Floyd and Wooldridge, 1999; Dushnitsky and Shaver, 2009); improvement of innovation performance (Lekmat, Laddawan, and Chelliah 2014; Michalski et al 2006; Alegre and Chiva 2013; Goodale, Kuratko and Covin 2011; Chen et al. 2015); and they are more competitive in hostile market (Filatotchev et al, 1999; Zahra, Covin and Slevin, 1995; Zahra and Garvis, 2000).

Corporate entrepreneurship has a positive influence on corporate financial performance (Zahra, 1991, 1993, 1996; Vozikis et al, 1999; Todorovic and Ma, 2008; Moreno and Casillas, 2008; Lekmat & Chelliah, 2014). In 1991, Zahra stated positive impact of corporate entrepreneurship intensity on both accounting and market-based components of organizational performance. Corporate entrepreneurship helps to get financial results going above the market and decreases unsystematic risk (Zahra, 1991). Further, investigation of corporate entrepreneurship and financial performance within environmental clusters supported the strong positive association of corporate entrepreneurship with financial performance (Zahra, 1993). Finally, longitudinal analysis by Zahra and Covin published in 1995 proved that corporate entrepreneurship is positively associated with company's financial performance measured by both profitability and growth indicators, and the strength of this relationship tends to grow over time (Zahra and Covin, 1995). The following attempt to align corporate entrepreneurship theory with financial theory showed that properly managed corporate entrepreneurship activities creates additional value for a company (Vozikis et al, 1999).

Second benefit from corporate entrepreneurship is knowledge management enhancing (Anders et al, 1999; Floyd and Wooldridge, 1999; Guadamillas et al., 2008). Corporate entrepreneurship efforts have significant impact on organizational learning and knowledge creation, they enhance overall organizational learning and drive the wide range of knowledge creation that becomes the foundation of new organizational competencies (Anders et al., 1999). Floyd and Wooldridge supposed that knowledge is distributed within an organization and owned by separate employees, while the developed mechanism of corporate entrepreneurship creates opportunity to transfer this knowledge into initiative and further into a project (Floyd and Wooldridge, 1999). Knowledge management as resource for corporate entrepreneurship is considered in research of Guadamillas in 2008 (Guadamillas et al., 2008).

Third benefit from corporate entrepreneurship is an improvement of innovation performance (Lekmat, Laddawan, and Chelliah, 2014; Michalski et al., 2006; Alegre and Chiva, 2013; Goodale, Kuratko and Covin, 2011; Chen et al., 2015). Goodale, Kuratko and Covin in 2011 found a significant positive relation of corporate entrepreneurship antecedents moderated by effect of control variables (Goodale, Kuratko and Covin, 2011). Lekmat, Laddawan and Chelliah suggested that innovation performance is an outcome of corporate entrepreneurship mediated by process innovation (Lekmat, Laddawan and Chelliah, 2014). Michalski, Nafe and Usein found that corporate venturing has a positive influence on innovative success (Michalski et al., 2006). Exploration of the IT capabilities, corporate entrepreneurship and innovative performance showed that corporate entrepreneurship activities significantly improves product innovation performance (Chen et al., 2015). Alegre and Chiva in 2013 founded that entrepreneurial orientation of a company enhances innovation performance (Alegre and Chiva, 2013).

Last benefit from corporate entrepreneurship is an increase in competitiveness in a hostile market (Filatotchev et al, 1999; Zahra and Covin, 1995; Zahra and Garvis, 2000). Longitudinal analysis provided by Zahra and Covin concluded that corporate entrepreneurship is an efficient practice for company operating in hostile environment. Filatotchev and Wright in 1999 concluded from analysis of post-USSR enterprises that corporate entrepreneurship increased survival chances for a company in an unstable and hostile market environment (Filatotchev and Wright, 1999). Corporate entrepreneurship is highlighted as a success factor in the hostile environment (Zahra and Garvis, 2000).

1.4. Internal and external factors influencing the intensity of corporate entrepreneurship

Corporate entrepreneurship intensity according to the “Entrepreneurial Health Audit” depends on frequency and degree of entrepreneurship (Ireland et al., 2006a). The degree of entrepreneurship indicates the extent to which an organization’s efforts are innovative, risky, and proactive (Ireland et al., 2006a, p. 12). Corporate entrepreneurship intensity is connected to a definition of entrepreneurial firm: risk-taking, innovative, and proactive (Barringer, 1991). Proactiveness means that company strategy is more oriented on launching new product than responding a competition (Covin and Stevin, 1990; Zahra, 1993; Barrett, 1996). Quinn in 1979 defined innovation as development of original decision for new or already existing need. Frequency of entrepreneurship estimation is based on amount of entrepreneurial initiatives company is taking (Ireland et al., 2006b). Corporate entrepreneurship intensity could measured with absolute number of new products launched by a company and product changes made for

last 2 years, comparison with amount of products launched by competitors and innovativeness of company's products for a market (Shirokova et al, 2009).

In order to create a model describing factors affecting corporate entrepreneurship were studied and assessed multiple theoretical models. Main sources for creating a model were following models: a model by Jennings and Lumpkin, 1989, a model by Zahra, 1991, a model by Russel and Russel, 1992, a model by Barringer and Bluedorn, 1999 and a model by Hornsby, Kuratko and Zahra, 2002 (Jennings and Lumpkin 1989; Zahra 1991; Russel 1992; Barringer and Bluedorn 1999; Hornsby, Kuratko and Zahra, 2002). First model consists of four factors: centralization of decision making, specialization, performance objectives and rewards and sanctions (Jennings and Lumpkin, 1989). Second model includes factors describing external environment, grand strategy and organization (Zahra, 1991). Third model evaluating connections between organizational structure and environmental uncertainty and entrepreneurial strategy (Russel and Russel, 1992). Fourth model describes relationship between corporate entrepreneurship intensity five strategic management practices: scanning intensity, planning flexibility, planning horizon, locus of planning, and control attributes (Barringer and Bluedorn, 1999). Model by Hornsby, Kuratko and Zahra, 2002. Fifth model explores five sets of organizational factors that have effect of entrepreneurial activities promotion and influence middle manager's participation in corporate entrepreneurship activities: Management support, work discretion/autonomy, rewards/reinforcement, time availability, and organizational boundaries (Hornsby, Kuratko and Zahra, 2002).

Model by Jennings and Lumpkin, 1989

The research made was aimed on investigation of internal environment differences in entrepreneurial and non-entrepreneurial organizations. Model consisted of four elements: centralization of decision making, specialization, performance objectives and rewards and sanctions (Jennings and Lumpkin, 1989).

Researchers concluded that decision making in entrepreneurial organization is participative, while in conservative organizations it is unilateral. The reason of this phenomenon is that the bigger amount of decision-making groups leads to variety of opinions and tends to support innovations (Jennings and Lumpkin, 1989).

It was found that entrepreneurial organization more take into account opinion of specialized personnel in decision-making process than conservative organizations due to the fact that highly specialized professionals are good in recognizing opportunities and companies with bigger amount of specialists are more innovative than others (Jennings and Lumpkin, 1989).

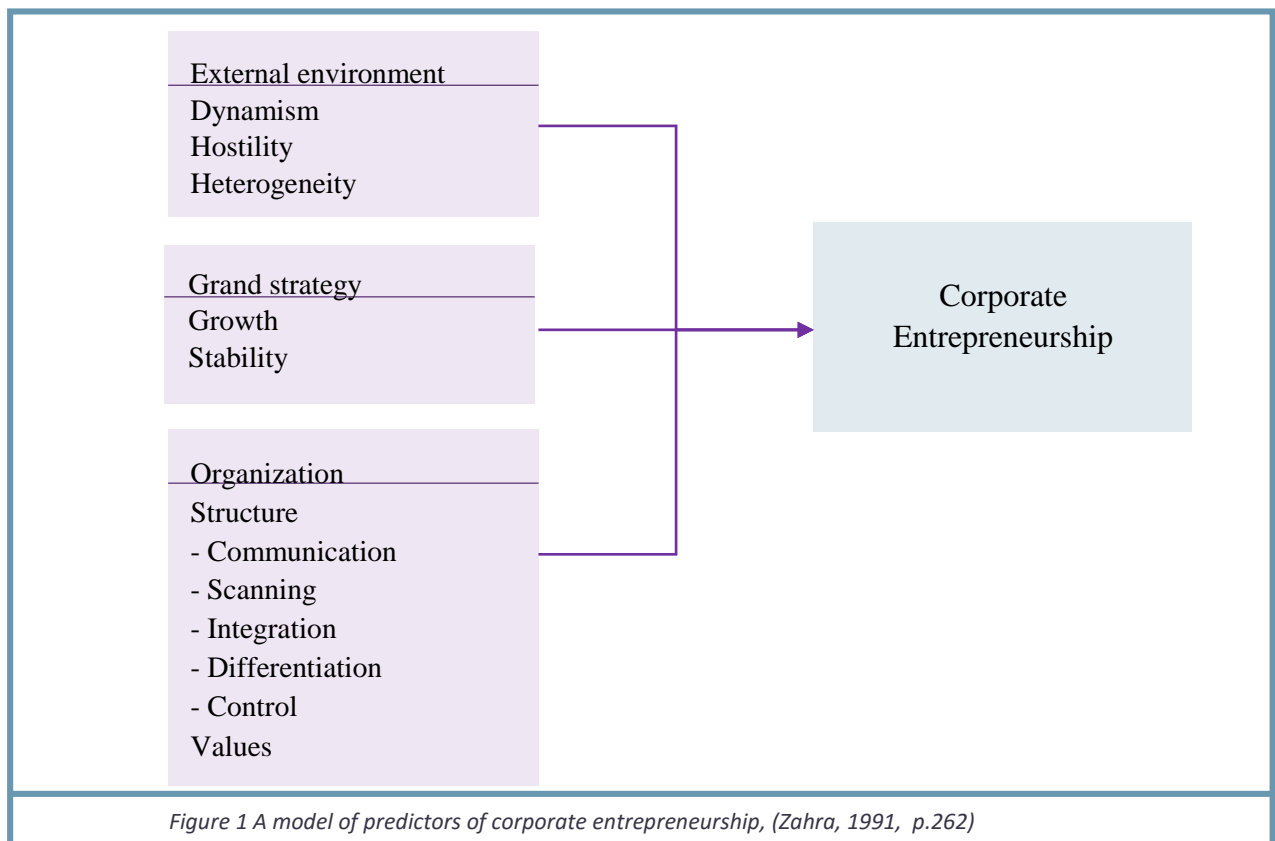
From the research could be concluded that performing objectives established from a shared participation enhance innovativeness of organizational members. Ultimate objectives

going from top to down do not support employees' innovations and lead to passive job duties accomplishment (Jennings and Lumpkin, 1989).

Encouraging risk taking and being patient to ideas' failures tends to be true for management of entrepreneurial organizations, than conservative ones. Entrepreneurial organization supports employees who are ready to take risks and to be innovative and perceive failure as a normal phenomenon (Jennings and Lumpkin, 1989).

Model by Zahra, 1991

The exploratory study by Zahra in 1991 provided results indicate that: environmental dynamism, hostility, and heterogeneity enhance corporate entrepreneurship; growth-oriented strategies are associated with increased corporate entrepreneurship, but a strategy of stability is not conducive to corporate entrepreneurship; the scanning, formal communication, and integration components of formal organizational structure are positively related with corporate entrepreneurship, while increased differentiation and extensive controls restrain corporate entrepreneurship; clearly defined organizational values are positively associated with corporate entrepreneurship (figure 1) (Zahra, 1991).



Model by Russel and Russel, 1992

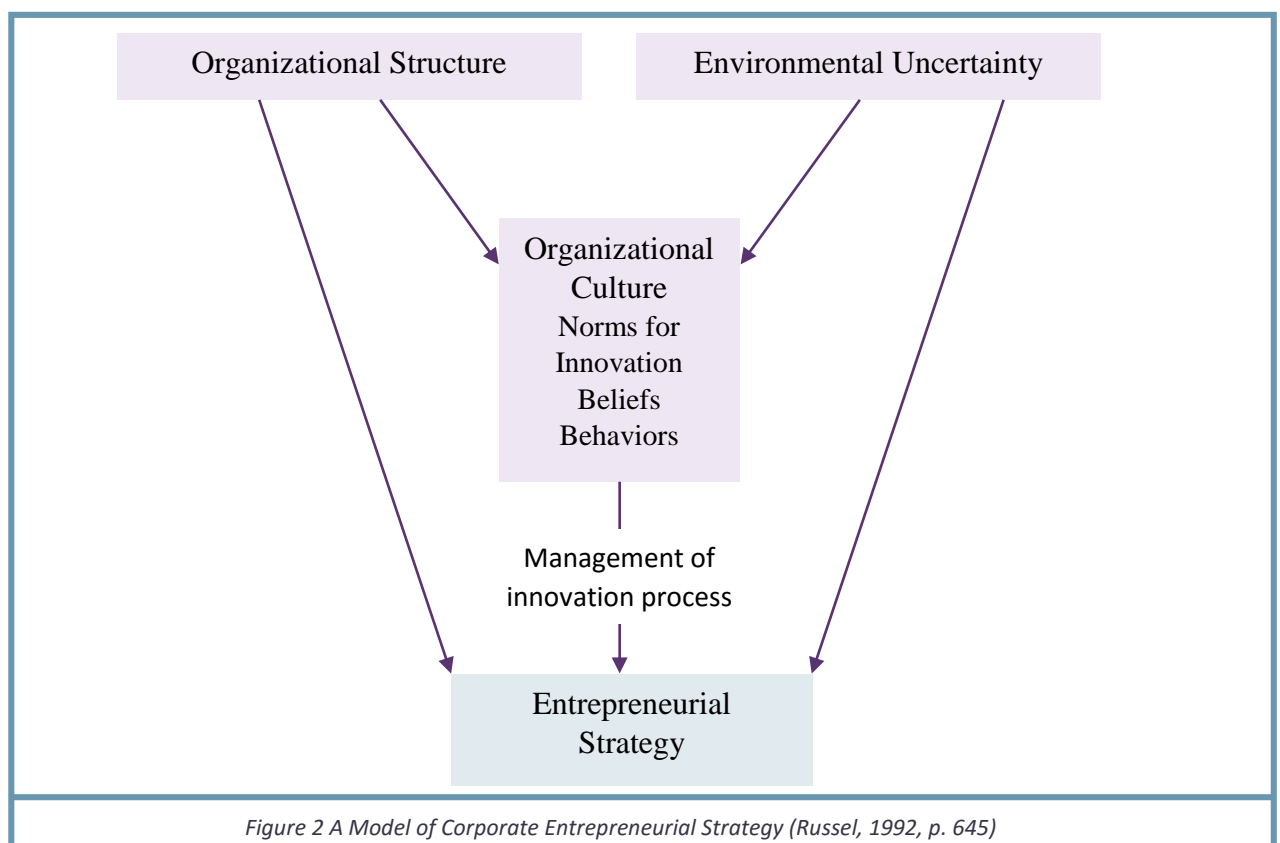
Russel and Russel provided a model describing connections between organizational structure, environmental uncertainty and entrepreneurial strategy. The model also considers

management of innovation process as a predictor of corporate entrepreneurship, influenced by organizational culture (figure 2) (Russel, 1992).

Environmental uncertainty is an external factor that tends to support innovativeness due to the fact of constant adoption needed and opportunity seeking. However, big amount of innovations in an industry or in a company creates a high level of perceived uncertainty. Both correlations exists, but any case high level of uncertainty creates more opportunities to innovate than moderate one (Russel, 1992).

Organizational structure according to the research has significant impact on corporate entrepreneurship. Entrepreneurial organizations are generally characterized with decentralized, complex organizational structures with lack of formality (Russel, 1992). Decentralized structure first, creates a context appropriate for innovations, second, let different levels of management initiate innovations through testing new ideas using resources available (Russel, 1992). Informal exchange of information and lack of formality new idea need to overcome increase chances that initiative will turn into an innovation. Increased level of complexity makes possible regular communication between employees with different expertise and backgrounds and enhance corporate entrepreneurship (Russel, 1992).

In addition, Russel and Russel underline the importance of innovation norms, supporting and encouraging innovative behavior and rejecting change resistance as an inappropriate behavior within a company (Russel, 1992).



A model by Barringer and Bluedorn, 1999

A model by Barringer and Bluedorn describes relationship between corporate entrepreneurship intensity and five strategic management practices: scanning intensity, planning flexibility, planning horizon, locus of planning, and control attributes.

Scanning intensity tends to support entrepreneurial process, decreasing level of uncertainty and giving to managers a vision of possible changes needed. Intensive scanning regime is widely used by entrepreneurial organizations, while in conservative organizations it takes less effort.

Planning flexibility is an important feature of a company with intensive corporate entrepreneurship because it characterizes company's ability to adjust strategy according to environmental changes and opportunities appearing.

Longer horizon of planning is appropriate for conservative organizations, operating on a relatively stable market, while short-term planning is more suitable for entrepreneurial firms open for innovative ideas and ready to change together with the environment or faster than it does.

Strategic control enhances corporate entrepreneurship, while financial control scope stifles it. Mechanical budget cuts break employees' involvement and decrease chances of the long-term projects to be realized.

Model by Hornsby, Kuratko and Zahra, 2002

This model explores five sets of organizational factors that have effect of entrepreneurial activities promotion and influence middle manager's participation in corporate entrepreneurship activities (Hornsby, Kuratko and Zahra, 2002). Management support, work discretion/autonomy, rewards/reinforcement, time availability, and organizational boundaries represent are sets of internal organizational factors that influence middle managers to foster entrepreneurial activity within established companies (Hornsby, Kuratko and Zahra, 2002).

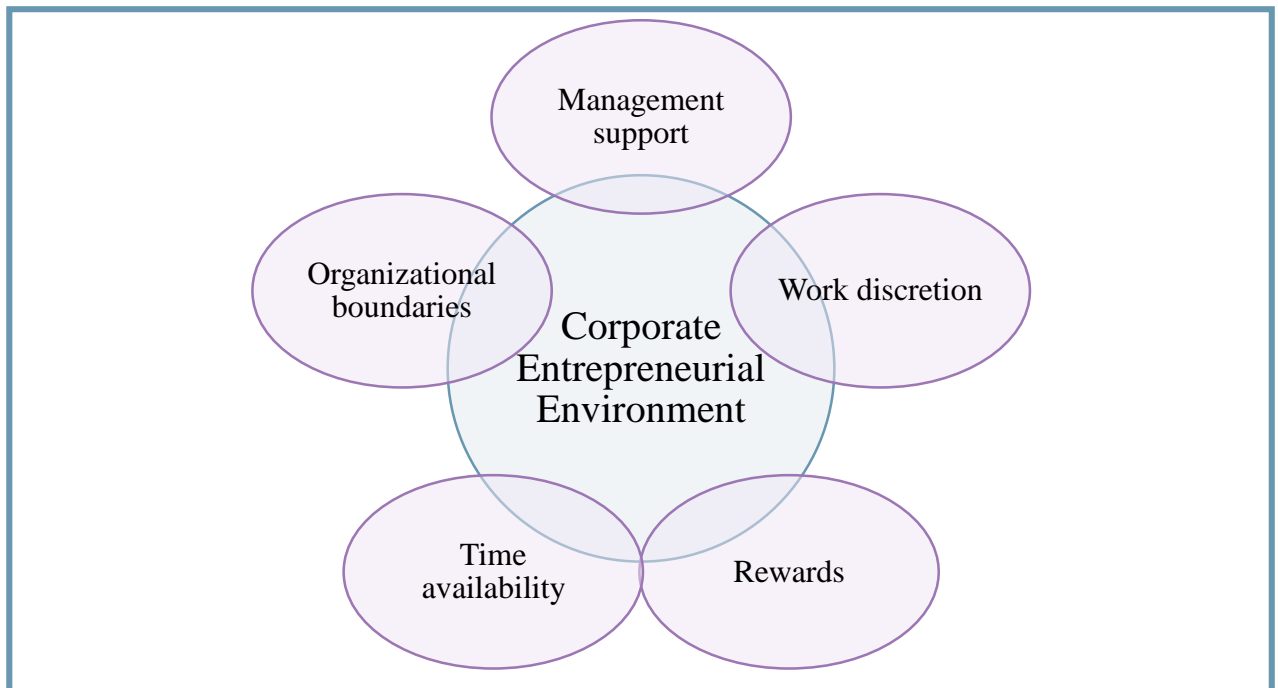


Figure 3 A factor model of middle manager's perception for corporate entrepreneurship (Hornsby, Kuratko and Zahra, 2002, p. 267)

Management support in facilitating and promoting entrepreneurial activity in the organization, support of innovative ideas and willingness to provide necessary resources, expertise or protection encourage middle managers on entrepreneurial behavior (Hornsby, Kuratko and Zahra, 2002).

High perceived level of autonomy while working and feeling of trust from a company increase willingness to innovate within an organization (Hornsby, Kuratko and Zahra, 2002).

Effective rewards system based on performance of employee and considering goals, feedback, emphasis on individual responsibility enhance corporate entrepreneurship on a middle-management level (Hornsby, Kuratko and Zahra, 2002).

Having some free time during job hours, moderate time pressure and ability to work on long-term perspectives supports corporate entrepreneurship (Hornsby, Kuratko and Zahra, 2002).

The structure must foster the administrative mechanisms by which ideas are evaluated, chosen, and implemented. Structural boundaries tend to be a major stumbling block for middle management in corporate entrepreneurial activity (Hornsby, Kuratko and Zahra, 2002).

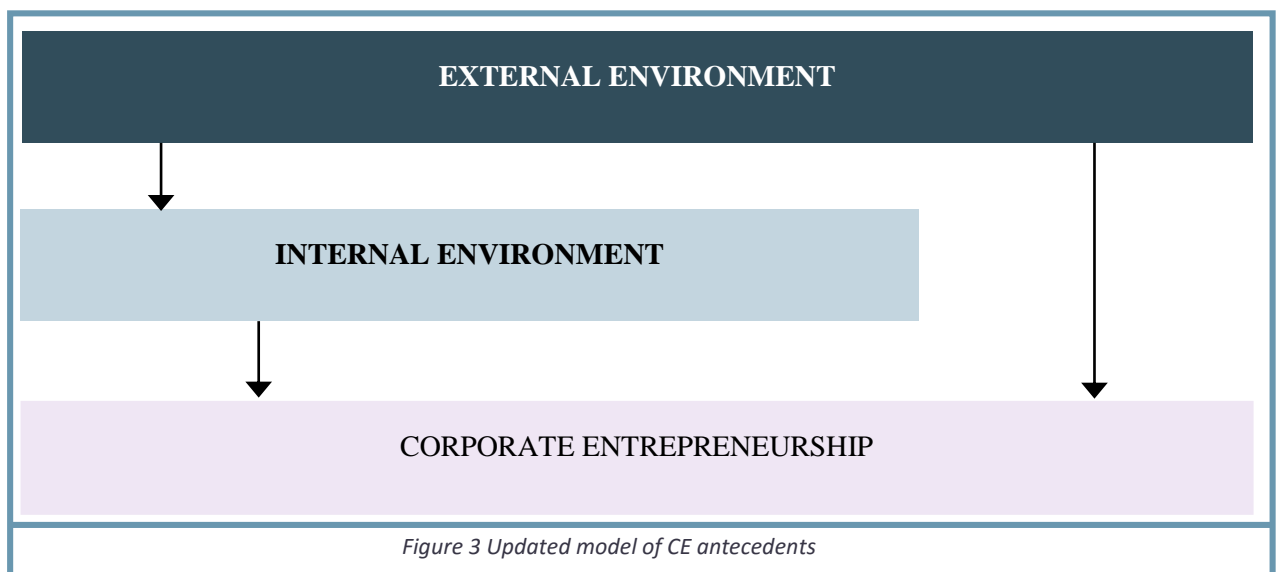
Building a new model

According to many in the field, corporate entrepreneurship intensity highly depends on internal and external environment and an organization have to take into consideration both of them (Zahra, 1991, Russell, 1992, Jones and Butler, 1992, Wyk, Rene and Adonissi, 2012), consequently, the traditional model depicts intensity of corporate entrepreneurship as a variable depending on set of internal and external factors.

However, four of five model described do not count connections between external and internal environment, and the one that includes suppose only influence of environmental uncertainty on corporate culture (Russel, 1992). Nevertheless, environmental uncertainty is not the only one factor of external environment affecting internal environment; and corporate culture is not the unique factor in organization influenced by external environment. The following analysis of influence of external environment gave a vision that at least part of internal factors is predetermined by external environment. Strong impact of industry on organizational culture (Hofstede, 1990; Gordon, 1991; Chatman and Jehn, 1994; Phillips, 1994; Abrahamson, 1997; Christensen and Gordon, 1999; Chaudhry et al., 2016), leadership style (Schlegelmilch, 1995; Reynaud et al, 2007) and organizational structure (Kloviene and Gimzauskiene, 2009).

Researchers insists on some consistent patterns and common trends found in companies operating in one industry, even the organizational culture is unique for separate company, consequently, corporate culture is partly formed with demands of external environment (Gordon, 1991; Chatman and Jehn, 1994; Christensen and Gordon, 1999; Chaudhry et al., 2016). Moreover, Hofstede's four of six culture values are determined by market, company operating in and a type of organizational specialization (Hofstede et al., 1990).

In a consequence of integration of corporate entrepreneurship researches and investigation of external environment impact on organization's characteristics created an updated model assuming that corporate entrepreneurship appears supported by internal factors, influenced with both internal and external environment and external factors predicted by external environment (Figure 3).



This model better matches the definition of corporate entrepreneurship telling CE is a process going inside the existing organization (Burgelman, 1983, Guth and Ginsberg, 1990, Antoncic and Hisrich, 2001) because of accentuating the key role of internal environment, simultaneously not negating the particular influence of external factors on corporate entrepreneurship.

Factors of external environment

Concerning external environment researchers emphasize, *dynamism* (Miller and Friesen, 1984; Zahra 1986; Oster 1990; Russell, 1992; Naman and Slevin, 1993) *level of rivalry* (Miller and Friesen, 1984; Zahra, 1986; Drazin and Schoonhoven, 1996) and *heterogeneity of the market* (Peterson and Berger 1971; Miller and Friesen, 1984; Keats and Hitt, 1988; Zahra, 1991)

Dynamism is a substantial source of creativity and innovation (Russell, 1992, Keats and Hitt, 1988) due to the fact that unstable and turbulent environment creates the need for the constant change (Naman and Slevin, 1993), while constant and unchangeable context tends to bear the leaden organizations with no ability to the fast changes and impervious to new ideas and opportunities. Nevertheless, uncertainty have not to be conjugated with the high level of risk, which negatively influence on the entrepreneurial activity in general and especially on the innovative activity. Generally, IT companies operate on new and undeveloped markets, where the level of uncertainty is sufficiently high, or operates on a developed market, but providing an innovative product (Hauschild et al., 2011; Robinson, 2014).

High *level of rivalry* is perceived as a motivation factor for innovative and entrepreneurship activity (Drazin and Schoonhoven, 1996) because of the competitors pressure and the intensive contention for the customer. As it was already mentioned, IT companies operate on new and undeveloped markets and use a strategy of “Blue Ocean” (Kim, 2005) or provide an innovative product for a developed market, accordingly the level of rivalry could significantly differ within a group (HE, 2015; Halkos and Nickolaos, 2007, OECD, 2015).

High *heterogeneity* of the market tends to increase organizational innovativeness and positively influence on corporate entrepreneurship intensity (Keats and Hitt, 1988; Zahra, 1991) due to the fact it means diversification of requests demanded by variety of segments served by the company (Miller and Friesen, 1984). This variety creates a need in constant development and impressive elaboration in market analysis and product improvement for reaching all segments satisfaction (Robinson, 2014; Halkos and Nickolaos, 2007).

Factors of internal environment

The internal environment could be described with ten attributes:

1. level of centralization (Sathe, 1988; Jennings and Lumpkin, 1989; Russell, 1992);
2. level of complexity (Jennings and Lumpkin, 1989; Russell, 1992; Ferdousi, 2012);
3. decision making process (Sathe, 1988; Jones and Butler, 1992, Ahuja and Lampert, 2001; Karol, 2015);
4. control system (Sathe, 1988; Jennings and Lumpkin, 1989; Zahra, 1991; Russell, 1992; Barringer and Bluedorn, 1999);
5. level of formalization (Sathe, 1988; Russell, 1992);
6. leadership style (Jones and Butler, 1992; Ahuja and Lampert, 2001; Dalziel, Gentry, Bowerma, 2011; Karol, 2015);
7. motivation to innovate (Russell, 1992; Sathe, 1988);
8. planning flexibility (Jones and Butler, 1992, Ahuja and Lampert, 2001; Ireland, Covin, Kuratko, 2009; Kuratko, 2012);
9. planning horizon (Jones and Butler, 1992, Ahuja and Lampert, 2001);
10. scope of planning (Burgelman, 1983, Jones and Butler, 1992, Barrett and Weinstein, 1999; Ahuja and Lampert, 2001).

Level of centralization is negatively correlated to the corporate entrepreneurship intensity, which is caused by increasing of discussion and decision time for innovation process (Russell, 1992). In companies with a low level of centralization, creative and innovative ideas about operation improvement could be implemented immediately and strategic innovations takes less time to be launched. As a general rule, IT companies are decentralized due to the high specialization of employee, which could overhead expertise of his supervisor (Murugan, 2009; Neves, 2012; Jacks and Prashant, 2014)

Level of complexity is positive correlated to the corporate entrepreneurship intensity, due to the big amount of horizontal connections, involvement of employees in wider variety of tasks inside the organization, interdepartmental connections and shared responsibility (Jennings and Lumpkin, 1989; Russell, 1992; Ferdousi, 2012). Generally, IT companies are characterized with a complex structure, including big amount of horizontal connections and sometimes, project organizational structure (Lin, 2008; Neves, 2012; Simonen et al, 2015).

Shared participation in the *decision-making process* increases involvement and motivation of employees (Sathe, 1988), decisions made based on the opinion of specialized personnel tend to be more successful than sole ones. Involvement of the employees with various background and expertise in decision-making process increase opportunity to view the challenge

from diversified scopes and find optimal decision (Russell, 1992). Due to the high level of IT company employees' education and general expertise all levels of company are generally involved in decision-making process (Murugan, 2009; Neves, 2012; Simonen et al, 2015)

Control scoped on strategic part rather than on financial part prevent mechanical budget cut in case of negative difference between planning parameters and real, support an individual approach to every project and based more on trust, than on control (Sathe, 1988). A serious weakness with this argument, however, is that in case of control lack company can meet an opportunistic behavior or excessive wastefulness. Control systems are different within an IT business (James and Lissy, 2012; Jacks and Prashant, 2014).

Level of formalization is negatively correlated to the intensity of corporate entrepreneurship (Russell, 1992). Key roots of this are long way of initiatives, attempts to overwhelm creativity, lack of ability to inform the manager about possible initiatives and lack of employees' commitment (Sathe, 1988). Informal atmosphere in IT companies is widely known (Lin, 2008; Collins and Ken, 2006; Ojha, 2005; Murugan, 2009).

Democratic leadership style tends to be more efficient than autocratic or bureaucratic in aspect of corporate entrepreneurship because of shared responsibility, ability of employees to influence on the performance objectives and decision making in general (Dalziel, Gentry, Bowerma, 2011). Leadership style is different within an IT business (Ojha, 2005; Murugan 2009; Jacks and Prashant, 2014).

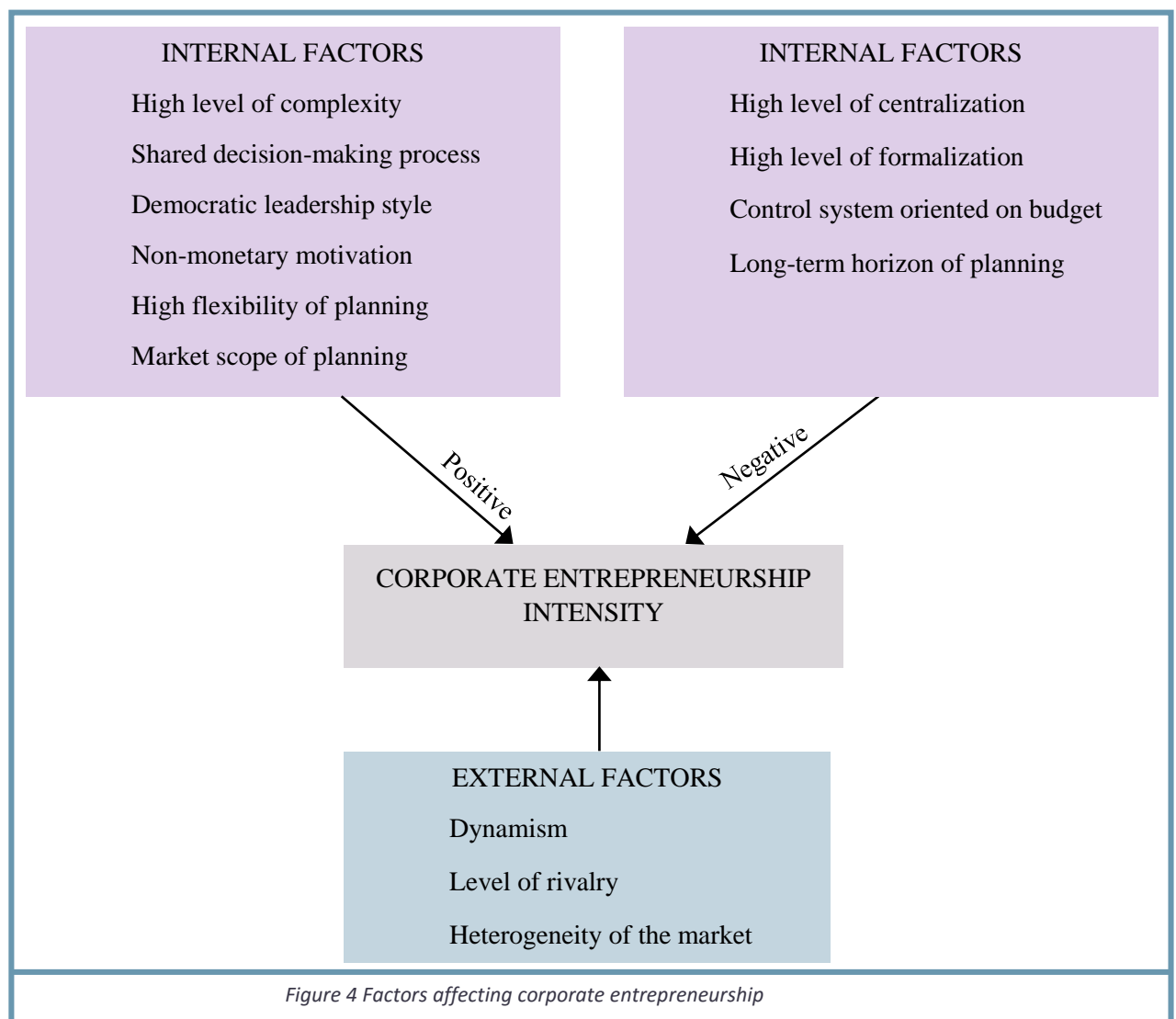
Motivation to innovate differs in entrepreneurial firms, monetary motivation doesn't play an important role, but factors as recognition, commitment, low personal and professional risk and perception of failure as a way to study encourage employees to innovate and support entrepreneurial approach (Russell, 1992; Sathe, 1988). Non-monetary motivation is very important for employees in IT companies (Murugan, 2009; Jacks and Prashant, 2014; Kesler, 2014).

Planning flexibility is positively correlated to corporate entrepreneurship intensity (Jones and Butler, 1992; Barringer and Bluedorn, 1999; Ahuja and Lampert, 2001). Ability to change plans and relocate resources is one of the root characteristic of entrepreneurial organization, because otherwise high risk exists to lose a right moment for innovative decisions or products. Flexibility of planning is generally high in the IT company due to the fast changes in the industry (Ching, 2014; Sharma and Mahima, 2003).

Planning horizon is negatively correlated to corporate entrepreneurship intensity (Barringer and Bluedorn, 1999; Ahuja and Lampert, 2001) due to the complexity of innovations implementation.

Using *market scope of planning* stimulates corporate entrepreneurship more than a strategic scope (Burgelman, 1983; Barringer and Bluedorn, 1999; Barrett and Weinstein, 1999; Ahuja and Lampert, 2001). It is connected with ability to analyze the future impact of the initiatives. There was no information found about scope of planning in IT companies.

According to the factors analyzed was suggested a following theoretical model, describing how do factors influence on intensity of corporate entrepreneurship (figure 4).



In a model internal factors are separated in two groups according to a direction of their influence on corporate entrepreneurship. Internal factors positively related with corporate entrepreneurship intensity are high level of complexity, democratic leadership style, non-monetary motivation, high flexibility of planning and market scope of planning. To internal factors negatively related with corporate entrepreneurship intensity were grouped high level of centralization, high level of formalization, control system oriented on budget and long-term

horizon of planning. All external factors, dynamism, heterogeneity and level of rivalry are supposed to be positively related to corporate entrepreneurship intensity (Table 3).

Table 3 Factors affecting corporate entrepreneurship

Factor	Type	Relation	Source
<i>Level of complexity</i>	Internal	Positive	Jennings and Lumpkin, 1989; Russell, 1992; Ferdousi, 2012
<i>Shared decision-making process</i>	Internal	Positive	Sathe, 1988; Jones and Butler, 1992, Ahuja and Lampert, 2001; Karol, 2015
<i>Democratic leadership style</i>	Internal	Positive	Jones and Butler, 1992; Ahuja and Lampert, 2001; Dalziel, Gentry, Bowerma, 2011; Karol, 2015
<i>Non-monetary motivation</i>	Internal	Positive	Russell, 1992; Sathe, 1988
<i>Flexibility of planning</i>	Internal	Positive	Jones and Butler, 1992; Barringer and Bluedorn, 1999; Ahuja and Lampert, 2001; Kuratko 2012
<i>Market scope of planning</i>	Internal	Positive	Burgelman, 1983; Barringer and Bluedorn, 1999; Barrett and Weinstein, 1999; Ahuja and Lampert, 2001
<i>Level of centralization</i>	Internal	Negative	Sathe, 1988; Jennings and Lumpkin, 1989; Russell, 1992
<i>Level of formalization</i>	Internal	Negative	Sathe, 1988; Russell, 1992
<i>Control system oriented on budget</i>	Internal	Negative	Sathe, 1988; Jennings and Lumpkin, 1989; Zahra, 1991; Russell, 1992; Barringer and Bluedorn, 1999
<i>Long horizon of planning</i>	Internal	Negative	Barringer and Bluedorn, 1999; Ahuja and Lampert, 2001
<i>Dynamism</i>	External	Positive	Miller and Friesen, 1984; Zahra 1986; Oster 1990; Russell, 1992; Naman and Slevin, 1993
<i>Level of rivalry</i>	External	Positive	Miller and Friesen, 1984; Zahra, 1986; Drazin and Schoonhoven, 1996
<i>Heterogeneity of the market</i>	External	Positive	Peterson and Berger 1971; Miller and Friesen, 1984; Keats and Hitt, 1988; Zahra, 1991

In the theoretical chapter was conducted an investigation of approaches to corporate entrepreneurship definition, exploring three concepts: intrapreneurship, corporate venturing and corporate entrepreneurship. It could be concluded that intrapreneurship and corporate entrepreneurship terms describes the same processes within a company, while corporate venturing could be synonymic to them or describe one type of corporate entrepreneurship activity.

Further was provided the theoretical research of corporate entrepreneurship theories with segregation on stages according to time and to the object of a research, were identified five stages of corporate entrepreneurship research: foundation, application, typology, antecedents and integration.

The research was continued with identification of corporate entrepreneurship benefits: financial performance improvement, knowledge sharing enhancing, improvement of innovation performance and increase of competitiveness in hostile market.

Finally, were investigated five existing models of internal and external factors affecting corporate entrepreneurship and builded 13-factors model, taking into consideration influence of external and internal environment. Farther as a result of research of connections between external and internal environment is suggested a model, taking into consideration key role of the industry influence on corporate entrepreneurship intensity.

CHAPTER 2. FACTORS INFLUENCING CORPORATE ENTREPRENEURSHIP INTENSITY: RESULTS OF EMPIRICAL RESEARCH

1.1. Case Study Design

For an investigation of the internal and external environment influence on corporate entrepreneurship intensity was decided to conduct a case study within 5 Russian IT companies.

Main goal of the case study was not verify results of the previous researches obtained by quantitative methods but understand how do factors and their combinations affects corporate entrepreneurship, which factors could be perceived as the main drivers of corporate entrepreneurship in the Russian IT industry and which factors has secondary, supportive influence.

Sample selection

First part of the research was a sample selection. In order to gain a research validity for a research were chosen company of different sizes, operating on different markets and of various age (table 4).

Table 4 Companies' description

Feature	Company A	Company B	Company C	Company D	Company E
<i>Enterprise size (number of employees)</i>	5	9	40	70	>500
<i>Market</i>	Mobile applications	Advertising	Software & IT solutions development	Online-payment	E-Commerce
<i>Market sector</i>	B2C	B2B	B2B	B2B	B2C
<i>Geographical market</i>	Russia, Europe	Russia, CIS attempts Europe, Israel	Russia	Russia, CIS, Western Europe	Russia
<i>Age</i>	<1year	1,5Y	8Y	12Y	15Y
<i>Market position</i>	n/a	n/a	1 st	Top10	Top10
<i>Interviewees position in a company</i>	Founder	Co-founder	CMO	HRD	Vice-head of E-commerce

Data collection

Data collection process was conducted with three methods: non-structured interviews with executives, analysis of the web sites and participant-observation (only for two of five companies).

Interviews were composed from preliminary set of 30 open questions that were supported with specifying questions appearing during the interview process. Duration of interview counts

from eleven to thirty minutes, excluding preliminary talk and acquaintance. All interviewees were assured in confidentiality of results obtained and usage of it only for scientific purposes. All the respondents are executives of Russian IT companies of different sizes, operating on different markets, what can be perceived as evidence of the research validity.

Questions were aimed on exploration of mechanism of following factors influence:

1. Centralization;
2. Complexity;
3. Level of formalization;
4. Decision making process;
5. Control system;
6. Leadership style;
7. Motivation to innovate;
8. Horizon of planning;
9. Flexibility of planning;
10. Scope of planning;
11. Dynamism;
12. Level of rivalry;
13. Heterogeneity of the market.

In order to explore corporate entrepreneurship intensity interviewees were asked to evaluate number of new products launched by a company for last 2 years, product changes and new versions made for last 2 years and estimate what is the relation of the amount of company's new products and company's competitors new products and suggest how innovative are launched products for a market (Shirokova et al, 2009).

For understanding level of centralization and complexity representatives were asked on which level of their company most decisions are made, how many horizontal connections exists in a company and how often employees from different departments are involved in common projects. It was suggested from theoretical sources that level of centralization is negatively related with intensity of corporate entrepreneurship while level of complexity is positively related with intensity of corporate entrepreneurship.

For evaluating decision making process interviewees should answer how many people are involved in a decision making process and who is the final decision-maker. According to the theoretical source shared decision making process with attraction of many employees is associated with high level of corporate entrepreneurship.

In order to have an overview of company's control system were asked questions about its locus and potential reaction of a company on strategically important project not profitable for a

long time and decision and actions in case if a project manager promises that soon the situation described will change. Control system oriented more on strategy than on budget and absence of mechanical budget-cuts are both antecedence of corporate entrepreneurship according to the previous researches.

Level of formalization was considered from various dimensions: a main way of communication in a company, presence or absence of dress-code and communication style between employees and between employees and senior management. Level of formalization was suggested to be negatively related with intensity of corporate entrepreneurship.

Interviewees were asked to estimate how much freedom of action has, in their opinion, an employee of a company, to describe leading style common for a company and evaluate how strict is regulation of employees activities in order to have a vision of leadership style in a company. Democratic leadership style was expected to be associated with insensitive corporate entrepreneurship.

Motivation to innovate was evaluated by following questions to representatives: what is the motivation for innovations in a company and how would the executive management reacts if the idea suggested by employee will fail. Non-monetary motivation was expected to have a higher influence in companies with high intensity of corporate entrepreneurship, the same as no policy of punishment for failure.

System of planning within a company was evaluated by asking employees to estimate three points: horizon of planning, flexibility of planning and scope of planning. Horizon of planning was expected to be negatively related with intensity of corporate entrepreneurship, flexibility of planning was expected to be positively related with intensity of corporate entrepreneurship and planning system oriented on market more than on budget is one of antecedents of intense corporate entrepreneurship.

External environment was evaluated from three dimensions: dynamism, level of rivalry and heterogeneity of the market.

In order to evaluate dynamism companies' representatives were asked about a length of technological cycle in a market they are operating on, frequency of new products appearance in the market, velocity of a customer's preferences change. Level of dynamism is positively related with intensity of corporate entrepreneurship according to the previous researches of connection between corporate entrepreneurship intensity and external antecedents.

Level of rivalry was estimated based on answers of interviewees on following questions: how many competitors does a company have, a perceived level of competition in a market, strength of customers influence on a company, strength of suppliers influence on a company.

Level of rivalry was expected to be positively related with intensity of corporate entrepreneurship.

Interviewees were asked to evaluate heterogeneity of the market from two perspectives: how do the existing products on the market differ and how do the tariffs on existing market differ. High heterogeneity is traditionally associated with intensive corporate entrepreneurship.

Web-site analysis was used mostly for evaluating reliability of information got from the interviews. It allowed verify objective information about companies markets, market position, number of employees, etc. Further investigation of markets companies are operating in gave a vision of how adequately executives see external environment.

Company B and company D investigation was supported with a participant-observation, company B for nine months and company D for two months in the role of trainee or employee. Direct observation helped to get an overview of the company and to get a deeper understanding of company's organizational structure, culture and to obtain another source of evidence for a case study. The limitation of this source of evidence was inability to evaluate level of corporate entrepreneurship and strategic features, due to the low position in companies.

Analysis

Analysis of the results was conducted with following steps:

- Integration of data in a table;
- Comparison and combination of the results from various sources;
- Search for similarities and patterns among the companies;
- Search for differences and patterns among the companies;
- Detailed analysis of sources of evidence;
- Patterns and trends description;
- Conclusions

First step, integration in a table, was aimed in representing data collected from a different sources in a format, allowing to compare companies one to each other. On this stage starts looking for patterns. Right organization of primary data helped to have all data in one page which made subsequent analysis possible.

Second step, comparison and combination of the results from various sources, includes comparison of data obtained from various sources in order to evaluate its reliability and unification of all results in one database aligning in into sets of information about companies observed.

Third step, search for similarities and patterns, consists of company's comparison and understanding which features are similar or equal in order to evaluate influence of factors investigated.

Fourth step, search for differences and patterns, was aimed on looking which questions were answered differently, how many features of each company do not fit patterns found on a previous stage, how could it influence on corporate entrepreneurship intensity and how those differences are connected among themselves.

Fifth step, detailed analysis of data obtained, helped to confirm or disprove intermediate conclusions made during the steps third and fourth, basing on concrete words, links, explanations, notes made by interviewees. This step created a basement of results and conclusions.

On the sixth step, patterns and trends description, were clearly formulated all patterns found during the study for each of thirteen factors, they were connected to the intensity of corporate entrepreneurship, were described connections among those factor, were found companies which do not fit patterns observed and were given explanation of this distinction.

On the last step were made conclusions, formulated inferences on how do factors affects corporate entrepreneurship, how are they connected one to each other, which factors are main drivers of corporate entrepreneurship and which are supportive and secondary.

1.5. Results of cross-case analysis

After comparison and matching of companies' representatives answers were made following consequences and patterns, allowing describing factors affecting corporate entrepreneurship.

Intensity of CE

Corporate entrepreneurship intensity was measured with absolute number of new products launched by a company and product changes made for last 2 years, comparison with amount of products launched by competitors and innovativeness of company's products for a market (Shirokova et al, 2009).

Companies' representatives mentioned that 5-10 new products were launched for last 2 years. The company A launched "3 new products for 10 months of existence", with assumption that is a normal speed of new launches for the company A could be suggested that the company fits in indicated interval (Company A). This data was supported by company's page on Apple Store and Google play. Company B launched "5 products for last 1,5 years" (Company B). Company D launched "around 10 product" for 2 years (Company D). Company E launched "a bit more than 10 products" for 2 years (company D). Company C representative told that only 2

products were launched for 2 years, apparently it is connected to the type company's services: software development and IT solutions, both of them require individual approach, so innovations are aimed on a product for client, not inside (Company C). No one company was able to name amount of product changes and new versions due to the fast implementation and constant improvement of process, companies' representatives indicated intensive rivalry pressure in the industry. On question how many product changes and new versions were made for last 2 years were given answers: "more or less 20 for 10 months" (Company A), "unnumbered" (Company B), "enhancing all the time" (Company C), "every week" (Company D), "constantly and coherently" (Company E).

Most of the companies told that they are faster than competitors what is critical factor of their success and speed of new product launches or changes is a key competitive advantage in fast-changing industry: "a bit faster than competitor" (Company A), "the same speed because otherwise you are late" (Company B), "company outstrips competitors" (Company C), "somewhat faster, there is a high competition in our market if we are not faster we will retire from top 10" (Company D), "our speed of launches is faster than competitors", in general we have more features and services" (Company E). Company E representative words are supported by comparison of their web-page and sites of their direct competitors. Participant-observation of company D supports statement above.

Majority of the companies told that at least part of their products are completely innovative for the market and they are the first who launched those product and services: "all free are innovative, nothing common exists before" (Company A) (supported by Apple Store analysis), "nothing similar exists before" (Company B) (supported by web-site analysis; participant observation), "there was a market of payment systems, but we are the first company who decided to aggregate them" (Company D) (supported by web-site analysis; participant observation), "I think quite innovative, for example we are the only one e-commerce suggesting bargaining to a client" (Company E) (supported by company and direct competitors web-sites analysis). However, company C mentioned that "our services are disruptive for Russian market but has analogies in Western Europe and USA" (Company C).

According to the respondents' answers could be concluded that intensity of corporate entrepreneurship is high and ability to launch innovative products earlier than competitors is perceived as a key competence for a company (table 5).

Table 5 Observation of intensity of corporate entrepreneurship

Feature	A	B	C	D	E
<i>Amount of new products launched by a company for last 2 years</i>	3 for 10 months	5 for 1,5 years	2	10	>10
<i>Amount of product changes and new versions made for last 2 years</i>	20 for 10 months	Constant development	Constant development	Constant development	Constant development
<i>Relation of the amount of company's new products and competitors new products</i>	Higher	Same speed	Much higher	Higher	Higher
<i>Innovativeness of products for a market</i>	Very innovative, no analogs	Very innovative, no analogs	Very innovative, but not for world	Innovative, no analogs on the moment of launch	Innovative, some unique

Internal environment

Centralization

All companies are characterized with a high level of centralization and most of decisions are made on the level of the founder or CEO. “Last word is on me” (Company A), “most of decisions are made on a level of co-founders” (Company B) (supported by participant-observation), “most decisions are made on a level of top-management without participation of stakeholders” (Company C), “on a level of founder, taking CEO position” (Company D) (supported by participant-observation), “different levels” (Company E). Is interesting to notice, that all companies except company C are headed by founder or CEO from A with five employees to E with five thousands employees (companies’ representatives interviews, web-pages).

While conducting interviews were mentioned multiple times that wish and vision of founders is a main driver for companies’ activities and determinant of direction companies are going: we take a new idea if the owner will be interested (company B, company D, company E), “company is governed by one person, who from time to time change a concept and goal setting, today he wants more image, tomorrow he wants more money, the day after tomorrow he wants fast company’s development and expansion of its activity and after everything could change back to image” (Company E), “our strategy is unclear, sometimes not sounded to everybody and sometimes sounded to nobody” (Company D), “usually I am that person, who believes in bright future and convince everybody in it” (Company A).

Complexity

Hundred percent of respondents interviewed described companies with high level of complexity, plenty of horizontal connections organized with different patterns: projects, meetings, PMO. “Horizontal connections exists between all employees” (Company A), “we are too small for a vertical hierarchy” (Company B), “amount of contacts with co-founder is higher than horizontal” (participant-observation of company B) “there are more horizontal connections than vertical” (Company C), “we have a project department and every new activity we call a project, and in those projects are involved people from different departments” (Company D) (supported by participant-observation), “horizontal contacts counts 80% of all contacts within the company” (Company E). Most of the interviewees mentioned that horizontal contacts have a high importance for company’s activities, which is relevant for both big and small enterprises. Two of three big companies referred market specificity as a main driver of project organizational structure: “horizontal contact are a basement of our activity” (Company D), “specificity of the company’s activity asks for creating a working group consisted from employees from different departments” (Company C).

Decision making

All strategic decisions in companies are made by owners or CEO and few executives, thus final decision is always made by a head of a company. On questions “How many people are involved in the decision making process?” and “Who is the final decision-maker?” were given following answers: “all five, owner” (Company A), “co-founders plus two more people” (Company B), “five people, CEO” (Company C), “founder and 7 heads of departments, CEO” (Company D), “depends on situation it could be CEO or he can give a right of decision to head of department and inform him which decision was made” (Company E). Founders are key personalities in companies; they are inspiring people on activity and on the same time are aimed on control all decisions those could influence enterprises’ performance (participant-observation of companies B, D).

Control system

3 of 5 companies in controlling their project and activities are oriented more on strategy, than on budget (company A, company C, company D), for example, if strategically important project is not profitable for a long time company is ready to wait some time and not to automatically cut costs on this project. However, three companies told that detrimental projects should be closed (company B, company D). On question “What will be company’s decision if strategically important project is not profitable for a long time, but a project manager promise that soon the situation will change?” were gotten following answers: “depends on situation, usually we continue to work on it” (Company A), “close” (Company B), “try to reach a

breakeven but no longer than 1,5 years” (Company C), “individually, may be stopped and after recommenced” (Company D), “close if not connected with offline activity and with image aspect” (Company E). This difference is also based on personal interest of company’s founder (company A, company B, company D); in case he believes in importance of the project for brand image (company D, company E), future financial success (company A, company B, company C, company E) or just interested in project it would be continued despite of financial aspect.

Consequently, no common conclusion about control system could be made from interview results; all projects in all companies are overviewed from different dimensions. Two companies also mentioned the customers’ satisfaction is highly important element of control system.

Formalization

All companies are characterized with low level of formalization, communication mostly goes with personal meetings, calls or messengers. Main named way of communication is voice (company A, company B, company D), internal or public messenger (company A, company C), meetings (company C, company E), mail (Company E).

No one company has a dress code, communication process between employees and between employees and senior management could be described as democratic, sometimes even friendly. “Absolutely friendly and everybody communicates on an equal footing” (Company A), “democratic” (Company B), “Democratic” (Company C), “Democratic” (Company D), “they only don’t use profanity among themselves” “informal” (Company E). Culture of companies does not imply usage of patronymic names, but sometimes a conversation between employees and senior management obliges to usage of formal you (participant-observation of companies B, D). Some interviewees connected it with high level of education and qualification of employees and some with time pressure conditions when communication and negotiation processes have not to take plenty of time and decisions must be made promptly: “we have no time on ceremonies” (Company D), “we are more or less on the same level, so we need no formalities” (Company B).

Leadership style

Most of companies told that employees have a high level of freedom within company’s policies, thus larger companies mentioned that some departments, mostly oriented on communication with external customers and suppliers has more detailed policies and regulations than others: “it depends on level, freedom of action is high for top and middle management, and on department – departments working with customers and serving departments, like accounting, finance have strict regulation, all about clients – high level of regulation, all about external processes – low” (Company D), “departments contacting external environment regulation of course, for others enough to accomplish tasks, nobody will ask how” (Company D). For most of

departments, success of employees is measured according to his ability to perform task given and regulation of actions could be described as low. However, all interviewees told that leadership style in their companies is authoritarian democracy, appealing to the need of fast decisions and tendency of employees to forget they are on working place. Respondents gave the following explanation of leadership style inconsistency to the theory: employees need enough freedom for keep them interested in job, but at the same moment, they need to feel borders of this freedom to avoid anarchy.

Motivation to innovate

All interviewees told that as the main motivation for innovations their employees is interest in innovation, ability to implement it within the company and general commitment in an organization they are working for. Company A: “They are just not interested to do not innovative job” (Company A). Company B: “monetary motivation is the worst. Better works non-monetary motivation, interest, employees interest in a process and in the company” (Company B). Company D: “Opportunity to head a project and implement suggested innovations” (Company D). Company E: “They are interested to do something new and risk doing it within sustainable company for its money, having regular job is less than open something new outside” (Company E). Only company C representative told that main driver for innovation is KPI (Company C); this answer could be connected with a fact, that interviewee from company C takes the position of CMO, so she has no clear vision of motivation system and corporate culture. All companies’ representatives rejected idea of any penalty or judgement in case if a project based on an idea suggested by employee will fail, told that it is a normal situation and even a failed project is a source of experience and technologies (Company A; Company B; Company C; Company D; Company E).

Horizon of planning

Horizon of planning is related with company’s size and years of work. For small companies it doesn’t exceed 6 months while for medium and big budget is stated for 6 months or 1 year and rough strategic plan exists for next 2 years (table 6).

Flexibility of planning

Majority of companies’ representatives signified readiness to develop a new project staying aside of current strategy in case this project interests a founder or promises financial results. Companies answers on question “If your company see a new opportunity, in which case it takes it?” were: “there are two variants, if it promises financial benefits in medium or long term or it is just interesting for us” (Company A), “if we decided that it is interesting – we are in” (Company B), “if it fits long-term strategy” (Company C), “if founder believes it” (Company D), “if founder decides is beneficial or just wants to go for it” (Company E).

Scope of planning

Planning system in companies interviewed is highly market-oriented, because the main resource needed is a team of qualified employees and companies do not perceive money as a deficit resource for their industry. On request to evaluate on what planning system is more oriented, market or resources available were given following answers: “our planning system is balanced, but market demand prevail” (Company A), “don’t know it could be both” (Company B), “hard to answer, but likely it is oriented more on resources available, because we serve top level of clients in our segment so do development when your year portfolio consists from less than 100 companies is complicated” (Company C), “on market demand, about resources nobody thinks, team is our main resource” (Company D), “more on market demand we do not have deficit of resources, more likely we have resources more than really needed” (Company A).

Table 6 Cases internal environment comparison

Factor	A	B	C	D	E
<i>Centralization</i>	High	High	Moderate	High	High
<i>Complexity</i>	High	High	High	High	High
<i>Decision making</i>	Centralized	Centralized	Centralized	Centralized	Less centralized
<i>Control system</i>	Strategic scope, no mechanical budget cuts	Strategic scope, mechanical budget cuts	Quality scope, no mechanical budget cuts	Strategic scope, no mechanical budget cuts	Complex system, no mechanical budget cuts
<i>Formalization</i>	Low	Low	Low	Low	Low
<i>Leadership style</i>	Authoritarian democracy, low guidance	Authoritarian democracy, low guidance	Republic, high guidance	Authoritarian democracy, high guidance for external contacts	Autocracy, high guidance for external contacts
<i>Motivation to innovate</i>	Interest, no penalties for failure	Interest, no penalties for failure	KPI, no penalties for failure	Interest, no penalties for failure	Interest, no penalties for failure
<i>Planning horizon</i>	6 months	2 months	6 months, 2 years strategy	Budget and strategy for 1 year	1 year, 2 years strategy (fast changing)
<i>Planning flexibility</i>	High	High	Moderate	High	High
<i>Scope of planning</i>	Balanced, more market-oriented	Resources available and market	Resources available	Market	Market

External environment

Dynamism

All markets companies examined are operating in are dynamic. Technological cycle do not exceed one year, new companies on market of company A appears every week, on market of company B every month and on market of company D every 2-3 months. On the contrary, company C and D function on more conservative markets, with new products appearing with less intensity. Representative of company D elucidated it with high complexity of a technology and high legal regulation of the market respectively. Nevertheless, all companies described customers preferences as conservative, referred to the fact that demand is primarily formed by the market and company need to suggest a disruptive product to attract customers attention.

Company A: “people dwell on what they like and to replace this product you need to make something really innovative or really interesting” (Company A). Company B: “customers preferences changes slower than new products appears, the thing is customers preferences on advertising market are formed by advertising market itself” (Company B). Company C: “customers preferences changes with the same temp as new product appears” (Company C). Company D: “customers preferences are stable, this market have to be conservative because it is connected to private financial security” (Company D). Company E: “customers preferences do not change, we, players on the market always invents something new and sometimes customers are even not ready to use our inventions” (Company E).

Level of rivalry

All companies run highly competitive markets. Majority of companies have less than 10 direct competitors (table 7), though the perceived level of competition is high (table 7). All companies operating on B2B market considered high customer’s influence on company’s operation (table 7) while company A and D operating on B2C markets mentioned that influence of their clients is low, but still they are customer-oriented company finding customer satisfaction their main goal. Four of five companies suppose significant influence of suppliers (table 7), for three of them termination of an agreement means collapse of all company’s operations. For companies A and B supplier intends platform they are working on, powerful company working on oligopoly market.

Heterogeneity of supply

Majority of companies mentioned that companies operating on those markets could be similar and differentiating only with number of options or cardinally differ one from another. On all markets products prices are established on similar level and the only possible way to fix different price is to offer something different from existing products and services (table 7).

Table 7 External environment description

Question	A	B	C	D	E
Dynamism					
<i>Length of technological cycle</i>	2-4 weeks	1 month – several years	2,5 months	1 year	-
<i>Frequency of new products appearance on the market</i>	Every week	Every month	< 1,5-2 years	Not often	Every 2-3 months
<i>Frequency of customers preferences change</i>	Low, formed by market	Formed by market	1,5-2 years	Conservative	Conservative, need to push
Level of rivalry					
<i>Amount of competitors</i>	Around 10	No direct competitors	<10	A lot, but real 3-4	4 direct, tenths of indirect
<i>Level of competition in your market?</i>	Very high	High	High	High	High
<i>Strength of customers influence</i>	No influence	High	Moderate, every client profit is less than 10% of all profit	High	No influence
<i>Strength of suppliers influence</i>	High platform influence	High platform influence	No influence	High	Moderate to high
Heterogeneity of supply					
<i>The level of difference among existing products</i>	Cardinal	Diverse; from low to high	Difference in number of options and approaches	Difference in number of options	Differs with concept, services
<i>The level of pricing differences</i>	No difference	No difference	High difference	Moderate	No difference

1.7. Findings from a case study

All companies investigated are operating on separate markets for different amount of time, count various amounts of employees, though patterns of internal and external environment are similar.

Most of factors investigated fit trends described in previous investigations of corporate entrepreneurship. However, 4 of 13 factors showed mismatch of obtained and expected results (table 8).

Table 8 Comparison of expected and obtained result

Factor	Expected result	Obtained result
<i>Centralization</i>	Low	High
<i>Complexity</i>	High	High
<i>Level of formalization</i>	Low	Low
<i>Decision making</i>	Shared	Centralized
<i>Control system</i>	Strategy-oriented	n/a
<i>Leadership style</i>	Democratic	Autocratic-democratic
<i>Motivation to innovate</i>	Non-monetary	Interest and loyalty
<i>Horizon of planning</i>	Short	Short
<i>Flexibility of planning</i>	High	High
<i>Scope of planning</i>	Market	Market
<i>Dynamism</i>	High	High
<i>Level of rivalry</i>	High	High
<i>Differentiation</i>	High	High

For instance, traditionally in corporate entrepreneurship theory level of centralization is positively related to corporate entrepreneurship intensity. Nevertheless, all of investigated companies described their companies as highly centralized. The possible explanation of this phenomenon is that most of companies are headed by founders, who generally tends to control all companies activities (Gedajlovic et al, 2004; Nelson, 2003, Walters et al, 2015).

The same reasoning could be suggested for mismatch of leadership style expected to be democratic and found autocratic-democratic (Nelson, 2003; Randøy, and Goel, 2003; Walters et al, 2015). Another explanation is a need to clearly mark borders for creative and enthusiastic people, this case democratic style encourage them while autocratic does not let to forget they are on working place and need to execute their job (Hersey and Blanchard, 1993).

Decision making process expected to be shared with high involvement of employees with different expertise and background, however, dynamic market and necessity to make decisions fast does not encourage long discussion and high involvement of a large number of people.

The intensity of corporate entrepreneurship is high in all five companies, is relatively equal for companies A, B, D and E and slightly lower for company C. It could be connected to several factors. Firstly, company C is headed by the sided CEO, not by founder as other companies investigated and leadership style is more lenient comparing to others (Nelsen, 2003). Secondly, company conduct high guidance for all project steps what could negatively affect intensity of corporate entrepreneurship according to the theoretical sources. Thirdly, planning system of company is more oriented on available resources and perceived less flexible than others. This factor could be correlated with the first one, because other four companies told that any project which do or does not fit the strategy could be taken if the founder is interested in it and sided CEO has less freedom in this aspect. Further company has less pressure from external environment: the most successful on the market, with no influence from suppliers side, moderate influence from customers side, less dynamic market and ability to influence on price due to the unique competence for the Russian market. It supports the theoretical suggestion that leadership style, scope of planning, level of rivalry and dynamism have influence on corporate entrepreneurship.

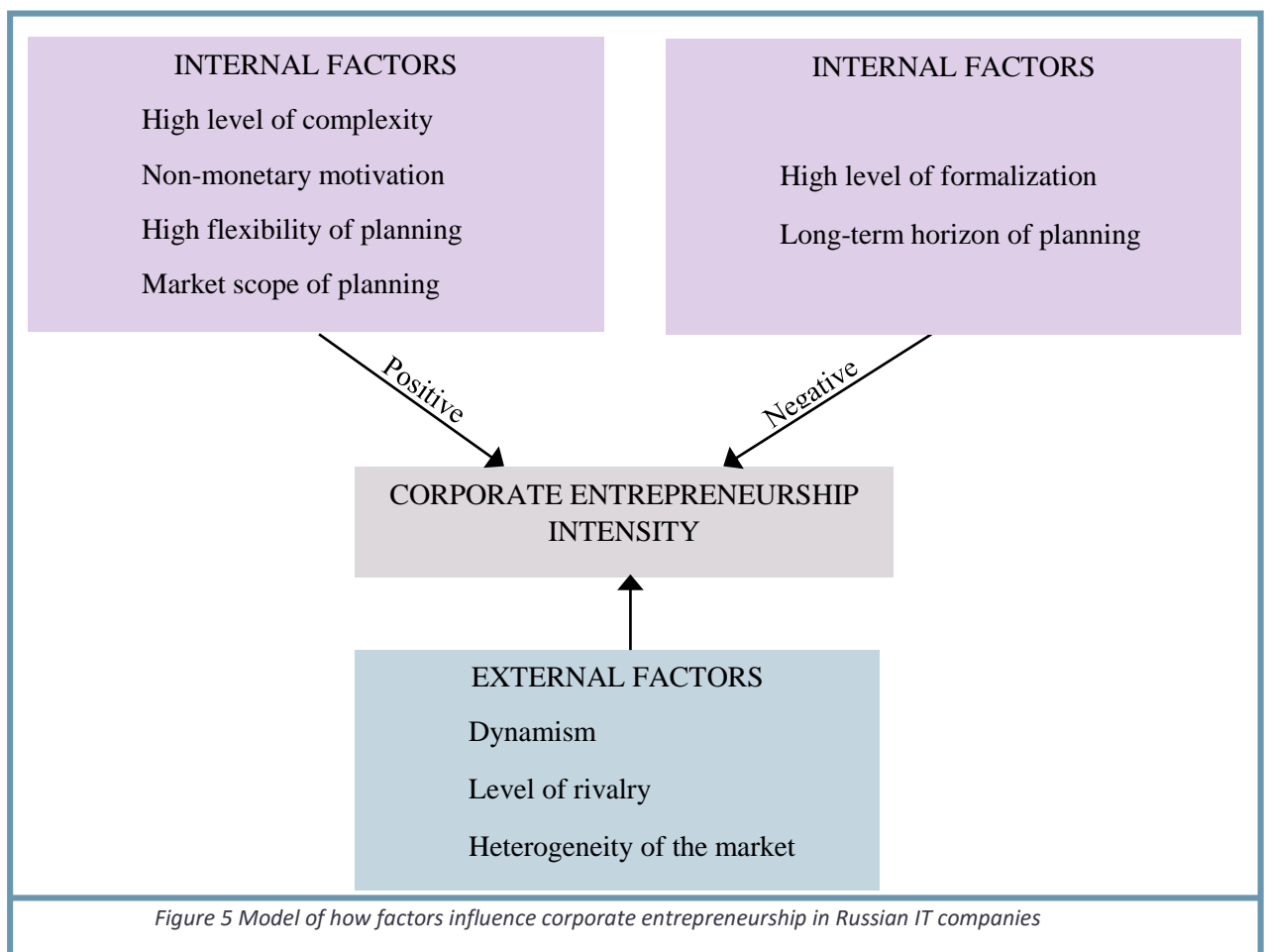
The most important and valuable conclusion from the interviews conducted is that corporate entrepreneurship obligatoriness originates in conservative customers preferences and is supported by engaged and interested in innovativeness employees.

First driver, conservative customers' preferences, was concluded from answers of interviewees on multiple question. Firstly, on direct question "How often do customers preferences change?" all companies told that changes happens slow and customers' preferences are formed by companies operating on the market. Secondly, the comparison of the specified technological cycle is significantly higher than the speed of customers preferences change. For instance, in company C those terms are 1,5-2 years for customers preferences change and 2,5 months for a technological cycle what gives a 10 times difference in period. Interviewees mentioned that only innovativeness could attract and retain clients; company need to invent something disruptive to make customers switch on their product. Indirectly this theory is confirmed by the fact that all companies came on market with products having no analog. The irregular level of differentiation among companies on one market shows that company has two ways of development: disruptive innovation or creating a similar qualitative product.

On this point high level of innovativeness and high intensity of corporate entrepreneurship is supported by second, already internal driver, interest and commitment of employees. “They are just not interested to accomplish not innovative activity” answered one of interviewees on the question how does he motivate his employees on innovations. This pattern was clearly traced in all interviews conducted, IT industry attracts people by low level of formalization and high level of freedom. Except pure interest in a result, employees could implement their ideas within a company, attracting its resources and expertise with no personal risk in case of an idea failure.

Consequently, corporate entrepreneurship is driven by need for customers preferences change and supported by employees interested in innovations and company development.

Juxtaposition of theoretical model and empirical study gives a following model: proved internal factors positively related with corporate entrepreneurship intensity are level of complexity, non-monetary motivation, flexibility of planning and market scope of planning. To internal factors negatively related with corporate entrepreneurship intensity were found level of formalization and horizon of planning. All external factors, dynamism, heterogeneity and level of rivalry are proved to be positively related to corporate entrepreneurship intensity.



CONCLUSIONS

The purpose of the research conducted was in building a working model of external and internal factors, influencing the intensity of corporate entrepreneurship in Russian IT companies and giving a description of how do elements of internal and external environment influence corporate entrepreneurship intensity in Russian IT companies.

The research starts with a theoretical part, where were investigated more than 100 scientific researches (most of them is graded higher than 3 by ABS guide) devoted to corporate entrepreneurship, corporate venturing and intrapreneurship. Were described different ways to corporate entrepreneurship definitions, historical perspective of corporate entrepreneurship investigation from 1980 to 2016. Were provided researches evidence that companies with intensive corporate entrepreneurship demonstrate financial performance improvement, knowledge sharing enhancing and they are more competitive on a hostile market. Were evaluated five existing models of factors affecting corporate entrepreneurship and suggested two models: the first model describes relationships between external and internal environment and corporate entrepreneurship, and the second model catalogs set of internal and external factors affecting corporate entrepreneurship intensity, taking into account direction of this influence. It was suggested that centralization, complexity, level of formalization, decision making process, control system, leadership style, motivation to innovate, horizon of planning, flexibility of planning, scope of planning, dynamism, level of rivalry, heterogeneity of the market affects corporate entrepreneurship intensity.

Theoretical research was supported with a practical part consisting in case study of five Russian IT companies of different sizes, operating on diverse markets. For the case study were used multiple sources of evidence: open-end questions interviews with executives, participant-observation and analysis of web sites. After the data-collection process was conducted a cross-case analysis and as a result of this from a theoretical model were excluded centralization, decision-making process, control system and leadership style.

The analysis provided is aimed to help executives of IT companies to understand how internal and external environment affects corporate entrepreneurship and which internal elements of an organization could support or diminish entrepreneurial intensity in conditions of Russian IT industry. According to the study conducted, corporate entrepreneurship improves financial and innovation performance, enhance knowledge sharing and makes companies more competitive in hostile market, which has high importance in current conditions of crisis in Russia.

From this study, managers could make a conclusion that high level of complexity in organization increases corporate entrepreneurship intensity and pay more attention on horizontal

contacts among employees, create a PMO department or restructure a company in order to create a project organizational structure, making organization more flexible and sustainable.

On the contrary, high level of formalization diminishes corporate entrepreneurship intensity and takes extra time which could be critical in the industry where ability to be faster and more innovative than competitors is perceived as a survival rule. Consequently, decreasing the amount of formal elements within a company, usage of new types of communications: internal messengers, popular messengers will have a positive impact on company's innovativeness.

Further, it could be concluded that non-monetary motivation works better in terms of corporate entrepreneurship, which could be a signal to change a motivation system if it does not fit this description. This research also supports the idea that nature of employees in Russian IT industry plays a significant role in establishing corporate entrepreneurship; this point together with a previous one gives understanding of HRM practices importance from a recruiting to a motivation policy. Proper recruiting of high-class specialists and turning them into loyal employees plays a significant role in future success of a business.

Onward, planning system has an impact on corporate entrepreneurship. Flexible system of planning, oriented on market and aimed on short or medium term periods is a reasonable choice for company operating on dynamic and hostile market. Renunciation from long-term planning could decrease company's costs on planning adjustments, make company more flexible and enhance entrepreneurial intensity.

Moreover, the case study conducted evidences that high level of centralization, periodically autocratic leadership style and renouncement of shared decision making do not negatively relates to corporate entrepreneurship intensity and could be perceived as a normal phenomenon in Russian IT companies. On the contrary, these organizational features, especially cultivated by a company founder could support innovations. It could give managers an understanding of the fact that freedom of actions given to employees should have clear borders and most of decisions should be done by the narrow circle of executives. However, this does not mean that employees' rights could be impinged and does not suggest a micromanagement as an appropriate way of company's governance.

The study conducted met following limitations: difference of the positions held by interviewees and participant-observation of two companies of five. Difference of the interviewees' positions could influence their awareness and point of view on diverse elements of organization. Two of five interviewees are founders of a company and we could see their equal awareness in answers to all questions, while representative from marketing definitely had less knowledge about organizational culture and motivation system and interviewee taking HRD

position had difficulties answering questions concerning product launched and changed. Partly this limitation was overcome by using other sources of evidence; however, it could have some impact on the case study result. Second limitation is ability to use participant-observation as a source of evidence only for two company of the set. It gave us deeper knowledge of those companies, which could result unconscious preference to results obtained from this source. This limitation was minimizing by critical thinking and subjectivity reduction.

Further study could observe conclusion made using quantitative methods, in order to establish better understanding of how and which factors are correlated among themselves, to check with statistical methodology conclusion about crucial drivers of corporate entrepreneurship. It could be done by detailed investigation of linkages between factors, their intensity and reasons. Another direction for further researches could be quantitative investigation of connections between internal and external antecedents of corporate entrepreneurship, separating internal factors which are mostly influenced from outside and highlighting internal factor which are mostly formed from inside.

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Appendix 1. Results of literature analysis

N	Year	Author	Question	Method	Findings
1	1983	Burgelman, Robert A.	How the strategic process concern entrepreneurial activity in large, complex organizations	Conceptual integration of the literatures on entrepreneurship in organizations and on the strategic process	Firms need both diversity and order in their strategic activity to maintain their viability. Managing diversity requires an experimentation-and-selection approach. Top management's critical contribution consists in strategic recognition rather than planning
2	1988	Sathe, Vijay	Investigation of 2 patterns of CE: surface entrepreneurship and deep entrepreneurship	Detailed longitudinal investigation of operation of 4 large USA companies and 4 large EU companies	Surface is a pattern where entrepreneurship perceived as a business objective, when in Deep it perceived as a shared value. Analysis of difference in control, motivation and risk in two patterns.
3	1989	Jennings, Danial F. Lumpkin, James R	Developing an objective definition of CE How entrepreneurial and conservative organizations differ with respect to certain organizational variables	MANCOVA analysis of factors in conservative and entrepreneurship organizations	In entrepreneurial firms decision making is more participative, more specialized personnel are employed, performance objectives are developed from a shared objectives, managers are not penalized in case of project failure compared to conservative firms. Entrepreneurial organizations use the same integration processes as conservative
4	1992	Russell, Craig J. Russell, Robert D.	Impact of organizations' structural and environmental characteristics on innovation	Survey within 77 strategic businesses and further analysis of correlated factors	Entrepreneurial strategy is predefined with innovation norms, degree of decentralization in organizational structure and environmental uncertainty
5	1992	Jones, Gareth R., Butler, John E.	How agency problems affect the dynamics of internal CE and the level of entrepreneurial behavior	Analysis of factors affect internal CE	Organizational size, age and complexity contribute to agency problem and curtail the CE. Uncertainty, effects of risk preferences and effects of 6opportunity affect internal entrepreneurship
6	1994	Stopford, John M., Baden-Fuller, Charles WF	How the various types of CE share five "bundles" of attributes: proactiveness, aspirations beyond current capabilities,	Longitudinal investigation of 10 significant businesses in UK trying to develop CE	Building of CE usually performs in long drawn out of processes for many years, not in single event All attributes appeared on five stages, but changed over time.

N	Year	Author	Question	Method	Findings
			team-orientation, capability to resolve dilemmas, learning capability		
7	1997	Birkinshaw, Julian	How types of initiatives in MNC differs	Detailed inductive study of 39 initiatives in MNC subsidiaries (nonparametric Kruskal-Wallis test) to determine whether there were differences between the different initiative types	Four types of initiatives could be identifiable, on the basis of the locus of the market opportunity: local, internal, global and hybrid
8	1999	Barringer Bruce R., Bluedorn, Allen C.	The relationship between corporate entrepreneurship intensity and five specific strategic management practices	Hierarchical regression analysis to find a correlation between corporate entrepreneurship intensity and five in a sample of 169 U.S. manufacturing firms	Positive relationship between corporate entrepreneurship intensity and scanning intensity, planning flexibility, locus of planning, and strategic controls.
9	2001	Ahuja, Gautam, Lampert, Curba Morris	How established firms create breakthrough inventions	Integration of the entrepreneurship and organizational learning literatures to develop a theoretical model Empirical study of one large company	Identification of three organizational pathologies that inhibit breakthrough inventions: the familiarity trap – favoring the familiar; the maturity trap – favoring the mature; and the propinquity trap – favoring search for solutions near to existing solutions. Experimenting with novel, emerging and pioneering technologies firms can overcome these traps and create breakthrough inventions
10	2009	Ireland, R. Duane, Covin, Jeffrey G. Kuratko, Donald F.	How to integrate knowledges about CE in one model	Integration of previous theoretical and empirical studies	CE strategy is manifested through the presence of three elements: an entrepreneurial strategic vision, a pro-entrepreneurship organizational architecture, and entrepreneurial processes and behavior
11	2011	Marcotte, Claude	How corporate entrepreneurship differs within different countries	Multinational statistical analysis of factors for comparing individual and organizational indicators of entrepreneurial	The inclusion of corporate entrepreneurship indicators, derived from the entrepreneurial orientation concept, modified substantially the country rankings based only on small

N	Year	Author	Question	Method	Findings
				activity in 22 member countries of the OECD	business ownership rates. A significant negative relationship was found between individual and corporate indicators.
12	2011	Dalziel, Thomas, Gentry, Richard J. Bowerma Michael	How directors' human and relational capital influence on firms' R&D spending	Hierarchical OLS regression to explore the influence of director characteristics on R&D spending, a precursor of innovation and entrepreneurial activity	Aspects of directors' human and relational capital (e.g. education, entrepreneurial finance experience, technical experience, and interlocks) significantly influence R&D spending
13	2012	Ferdousi, Shawkat	How utilization of cross-functional teams can augment corporate entrepreneurship practices in large corporations.	Examination of relevant conceptual frameworks around team building and models for corporate entrepreneurship	The efficient functioning and success of cross-functional corporate entrepreneurship teams can significantly improve innovative climate inside the company
14	2013	A Zahra, Shaker, Randerson, Kathleen Fayolle Alain	How companies Explore and exploit activities with opportunity discovery and creation	Revising the traditional boundaries and definitions of the field of entrepreneurship itself	Draw attention to the many intermediate outcomes of CE such as learning, adaptation, capability building and the facilitating of organizational evolution.

Appendix 2. Interview questions

Intensity of CE

- 1.1. How many new products were launched by your company for last 2 years?
- 1.2. How many product changes and new versions were made for last 2 years?
- 1.3. What is the relation of the amount of your new products and your competitors new products?
- 1.4. How innovative are your products for a market?

Internal environment

Centralization

- 2.1. On which level of your company most decisions are made?

Complexity

- 2.2. How many horizontal connections exists in your company?
- 2.3. How often employees from different departments are involved in common projects?

Decision making

- 2.4. How many people are involved in the decision making process?
- 2.5. Who is the final decision-maker?

Control system

- 2.6. Is your control system more oriented on budget or strategy?
- 2.7. If strategically important project is not profitable for a long time, but a project manager promise that soon the situation will change, what will be your decision?

Formalization

- 2.8. What is the way of communication in your company: letters, messages, oral communication etc.?
- 2.9. If there is dress code in your company?
- 2.10. Which is the style of communication between employees and between employees and senior management?

Leadership style

- 2.11. How much freedom of action has, in your opinion, an employee of your company?
- 2.12. How would you describe leading style common for your company?
- 2.13. Are the employees guided by their leader/ manager/superior while achieving their objectives?

Motivation to innovate

- 2.14. What is the motivation for innovations in your company, is it profit sharing, bonuses, recognition, commitment?

2.15. How would the executive management reacts if the idea suggested by employee will fail?

Horizon of planning

2.16. What is the horizon of planning for your company?

Flexibility of planning

2.17. If your company see a new opportunity, in which case it takes it?

Scope of planning

2.18. Is your company planning system more oriented on market or on resources available?

External factors

Dynamism

3.1. The technological cycle in your industry is?

3.2. How often do new products appear in the market?

3.3. How often do the customers preferences change?

Level of rivalry

3.3. How many competitors does your company have?

3.4. How would you describe the level of competition in your market?

3.5. What is the strength of customers influence on your company?

3.6. What is the strength of suppliers influence on your company?

Heterogeneity of the market

3.7. How do the existing products on the market differ?

3.8. How do the tariffs on existing market differ?

Appendix 3. Short Interviews' results

Question	A	B	C	D	E
1.1. How many new products were launched by your company for last 2 years?	3 for 10 months	5 for 1,5 years	2	10	>10
1.2. How many product changes and new versions were made for last 2 years?	20 for 10 months	Constant development	Constant development	Constant development	Constant development
1.3. What is the relation of the amount of your new products and your competitors new products?	Higher	Same speed	Much higher	Higher	Higher
1.4. How innovative are your products for a market?	Very innovative, no analogs	Very innovative, no analogs	Very innovative, but not for world	Innovative, no analogs on the moment of launch	Innovative, some unique
Centralization					
2.1. On which level of your company most decisions are made?	Founder	Co-Founders	Top-management	Founder	Different levels
Complexity					
2.2. How many horizontal connections exists in your company?	Between all	Between all	Big amount	High, PMO	80% of all contacts
2.3. How often employees from different departments are involved in common projects?	Constantly	Constantly	Constantly, project organizational structure	Constantly	Constantly
Decision making					
2.4. How many people are involved in the decision making process?	All 5	Founders plus two	5	Founder plus 7 deputies	Different
2.5. Who is the final decision-maker?	Founder	Founders	CEO	Founder	CEO or deputies
Control system					
2.6. Is your control system more oriented on budget or strategy?	Strategy	Strategy	Quality	Budget, strategy is unclear	Both
2.7. If strategically important project is not profitable for a long time, but a project manager promise that soon the situation will change, what will be your decision?	Continue to work	Close	Not more than 1,5 years attempts to reach breakeven	Individually	If possible – close nonprofitable
Formalization					
2.8. What is the way of	Messenger	Voice	Internal	Voice	Letters and

Question	A	B	C	D	E
communication in your company: letters, messages, oral communication etc.?	and private meetings		messenger		meetings
2.9. If there is dress code in your company?	No	No	No	No	No
2.10. Which is the style of communication between employees and between employees and senior management?	Informal, friendly	Democratic, informal	Democratic, without hierarchy	Democratic	Informal
Leadership style					
2.11. How much freedom of action has, in your opinion, an employee of your company?	A lot	A lot	100%	Less for departments, connected with external communication more for others	A lot
2.12. How would you describe leading style common for your company?	Combination of soft and hard	Authoritarian-democratic	Republic	Democratic, sometimes Authoritarian	Autocracy
2.13. Are the employees guided by their leader/manager/superior while achieving their objectives?	General description	Low guidance	High guidance	High only for external contacts	High for Sales
Motivation to innovate					
2.14. What is the motivation for innovations in your company, is it profit sharing, bonuses, recognition, commitment?	Interest	Interest in process and company	KPI	Interest and ability to head a project	Interest, no risk
2.15. How would the executive management reacts if the idea suggested by employee will fail?	Restrained, pragmatic	Move further	Neutral	Understanding	Neutral
Horizon of planning					
2.16. What is the horizon of planning for your company?	6 months	2 months	6 months, 2 years strategy	Budget and strategy for 1 year	1 year, 2 years strategy (fast changing)
Flexibility of planning					
2.17. If your company see a new opportunity, in which case it takes it?	Interest or potential profit	Interest of founders	Fit long-term strategy	Interest of founder	Potential profit, founder wish
Scope of planning					

Question	A	B	C	D	E
2.18. Is your company planning system more oriented on market or on resources available?	Balanced, more market-oriented	Both	Resources available	Market	Market
Dynamism					
3.1. The technological cycle in your industry is?	2-4 weeks	1 month – several years	2,5 months	1 year	-
3.2. How often do new products appear in the market?	Every week	Every month	< 1,5-2 years	Not often	Every 2-3 months
3.3. How often do customers preferences change?	Low, formed by market	Formed by market	1,5-2 years	Conservative	Conservative, need to push
Level of rivalry					
3.3. How many competitors does your company have?	Around 10	No direct competitors	<10	A lot, but real 3-4	4 direct, tenths of indirect
3.4. How would you describe the level of competition in your market?	Very high	High	High	High	High
3.5. What is the strength of customers influence on your company?	No influence	High	Moderate, every client profit is less than 10% of all profit	High	No influence
3.6. What is the strength of suppliers influence on your company?	High platform influence	High platform influence	No influence	High	Moderate to high
Heterogeneity of the market					
3.7. How do the existing products on the market differ?	Cardinal	Diverse; from low to high	Difference in number of options and approaches	Difference in number of options	Differs with concept, services
3.8. How do the tariffs on existing market differ?	No difference	No difference	High difference	Moderate	No difference